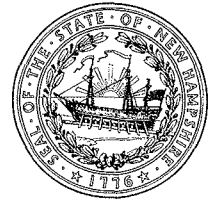


The State of New Hampshire  
**Department of Environmental Services**

**Thomas S. Burack, Commissioner**

*Celebrating 25 Years of Protecting  
New Hampshire's Environment*



**WATER CONSERVATION PLAN APPROVAL**

August 13, 2012

Wentworth Acres Homeowners Association  
c/o Harry Blood  
P.O. Box 1142  
Moultonborough, NH 03254

**RE:** Moultonborough – Wentworth Acres (PWS ID #: 1612250)  
Water Conservation Plan, July 2012, NHDES # 999689

Dear Mr. Blood:

On July 24, 2012, the New Hampshire Department of Environmental Services (“DES”) Drinking Water and Groundwater Bureau received a Water Conservation Plan, dated July 2012, for Wentworth Acres located in Moultonborough, New Hampshire (the “Plan”). 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 Plan, DES has determined the Plan complies with Env-Wq 2101.06, *Requirements for Existing Small Community Water Systems*.

Pursuant to Env-Wq 2101.11, the Town of Moultonborough and the Lakes Region Planning Commission were provided the opportunity to comment on the Plan from July 23, 2012, the date of public notification, through August 13, 2012. DES received no comments.

**Conditions:**

1. The meter make and model of the proposed distribution meter shall be forwarded to DES for review and approval.
2. The distribution meter shall be installed per manufacturer’s instructions. Particular attention shall be paid to whether a certain length of straight run pipe is needed upstream and downstream of the meter.
3. By **June 1, 2013**, thresholds proposed for night flow analysis shall be determined using the method in the WCP and submitted to DES for review. The proposed thresholds should be accompanied by the records from night flow analysis conducted before valving and leak repair and after valving and leak repair.
4. On **July 24, 2015**, and every three years thereafter, the water system shall submit a detailed and completed compliance report form to DES documenting compliance with the Plan. Required information includes contact information for the water-system owner and for the individual responsible for carrying out plan tasks; dates tasks were performed; and data relating to meter

[www.des.nh.gov](http://www.des.nh.gov)

29 Hazen Drive • PO Box 95 • Concord, NH 03302-0095

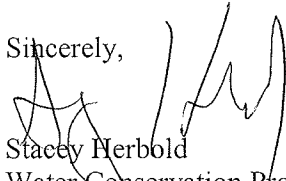
Telephone: (603) 271-2513 • Fax: (603) 271-5171 • TDD Access: Relay NH 1-800-735-2964

reading, water audits, leak detection, and public outreach. A copy of the *Water Conservation Plan Ongoing Compliance Form* may be located by going to the DES website, [www.des.nh.gov](http://www.des.nh.gov), clicking on the "A-Z List" in the top right corner of the page, and scrolling down to Water Conservation.

5. Wentworth Acres shall report to the DES Water Use Registration and Reporting Program. DES has assigned **WUID 20944** to the facility. The total monthly volume withdrawn from each source shall be reported to DES on a quarterly basis. The first quarter report is due **October 15, 2012**. The water system shall register as a data provider and utilize the DES OneStop reporting tool to submit water use data. Instructions for using the tool are enclosed with this letter. If you have any questions about Water Use Registration and Reporting or registering as a data provider please contact Derek Bennett at 271-6685 or [derek.bennett@des.nh.gov](mailto:derek.bennett@des.nh.gov).
6. Revisions to the Plan shall not be implemented without further approval from DES.

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

Sincerely,



Stacey Herbold  
Water Conservation Program  
Drinking Water and Groundwater Bureau

cc: Diana Morgan, NHDES  
Town of Moultonborough  
Lakes Region Planning Commission  
Matt Hernick, Horizons Engineering

RCVD 7/24/12



---

34 SCHOOL STREET • LITTLETON, NH 03561 • PHONE 603-444-4111 • FAX 603-444-1343 • [www.horizonsengineering.com](http://www.horizonsengineering.com)

**WATER CONSERVATION PLAN  
EXISTING SMALL COMMUNITY WATER SYSTEM**

**Prepared for:**

**Wentworth Acres Homeowners Association  
Moultonborough, New Hampshire**

**Prepared by:**

**Horizons Engineering, Inc.  
Littleton, New Hampshire**

**July 2012**

**Project No. 11211  
Copyright©**

17 Sunset Terrace  
Newport, VT 05855  
Ph.: 802-334-6434  
Fax: 802-334-5602

34 School Street  
Littleton, NH 03561  
Ph: 603-444-4111  
Fax: 603-444-1343  
[www.horizonsengineering.com](http://www.horizonsengineering.com)

35 Railroad Row, Suite #204  
White River Junction, VT 05001  
Ph: 802-296-8300  
Fax: 802-296-8301

**WATER CONSERVATION PLAN - EXISTING SMALL COMMUNITY  
WATER SYSTEM  
WENTWORTH ACRES HOMEOWNERS ASSOCIATION  
MOULTONBOROUGH, NEW HAMPSHIRE**

**Table of Contents:**

I.	Introduction.....	1
II.	System Side Management.....	4
III.	Consumption Side Management.....	7
IV.	Zoning Ordinance / Bylaws .....	8
V.	Water Use Restrictions .....	9
VI.	Reporting and Implementation .....	9
VII.	Public Notification of Water Conservation Plan .....	10
VIII.	NHDES Contact.....	10
IX.	Water System Owner Certification and Signature.....	10

**Appendices:**

Night Flow Detection Methodology .....	A-1
Sensus Limited Warranty.....	A-3

- \* Outreach Educational Materials developed by NHDES:
  - WD-DWGB-26-2 Water Efficiency Practices for Domestic Indoor Water Use
  - WD-DWGB-26-3 Water Efficiency Practices for Outdoor Water Use

- \* NHDES Ongoing Compliance Form and Appendices
- \* Source Meter Calibration Form
- \* Leak Worksheet

\* Note: these Appendices are available online at:

[http://des.nh.gov/organization/divisions/water/dwgb/water\\_conservation/index.htm](http://des.nh.gov/organization/divisions/water/dwgb/water_conservation/index.htm)

**Water Conservation Plan Format and Content:**

The format and content of this document is based on Section III. "Water Conservation Plan Guidance Document for Existing Small Community Water Systems..." of "*Water Conservation Plan Guidance Document for Community Water Systems, September 2011 (WD-11-22)*", specifically prepared by Derek Bennett and Stacey Herbold, NHDES Drinking Water and Groundwater Bureau.

## I. Introduction

### A. Contact Information

1. Name and location of system:

The Wentworth Acres Homeowners Association Water System supplies water exclusively to single family homes within the Wentworth Acres development off Wentworth Shores Road in Moultonborough. The PWSID is 1612250.

2. Owner of system and mailing address:

Wentworth Acres Homeowners Association  
c/o Mr. Harry Blood  
P.O. Box 1142  
Moultonborough, NH 03254

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

Matt Hernick, PE  
Horizons Engineering, Inc.  
34 School Street  
Littleton, NH 03561  
(603) 444-4111

### B. System Overview

1. Reason for new source:

Declining yields in the two existing wells have prompted construction of a new well to ensure a safe water supply.

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

- a) Residential: 35
- b) Industrial/commercial/institutional: 0
- c) Municipal: 0

3. Description of any connections that currently receive or will receive more than 20,000 gpd:

No customers receiving more than 20,000 gpd are currently, or expected to be, connected.

C. Water Use Trends and Supporting Data / Population Trends

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

Limited data suggests slightly higher use during summer months. This is likely due to higher occupancy during the summer and some minor garden watering etc. Current data is inadequate to determine seasonal fluctuations in water use. High use due to landscape irrigation is not expected.

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

The subdivision is at full build-out. No additional connections will be allowed.

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

The maximum day yield of existing sources is estimated at 18,720 gpd, based on an estimated sustainable 24-hour pumping rate of 4 gpm for Well #1 and 9 gpm for Well #2.

4. Average daily water use:

Current average daily demand (ADD) is approximately 4,000 gallons per day, based on source meter data from 2009-2012. Usage has declined somewhat, likely due to conservation measures already implemented.

5. Maximum daily water use:

Source meters are not read frequently enough to determine the maximum daily demand (MDD).

6. Minimum hourly flows (if available):

These data are not available.

D. Source Meters

1. Name designation of each water source:

Existing Sources:

Well #1 – Bedrock Well, 980 ft deep

Well #2 – Bedrock Well, 760 ft deep

New Source:

Well #3 – Bedrock or Gravel well (proposed)

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

Existing meters are Sensus 2” and 1” meters. Meters were installed approximately 2 years ago (2010) and have not been calibrated since.

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

New source meter information is not yet available because the new source has not yet been installed. Meters will be installed in accordance with manufacturer’s instructions prior to connection to the water system.

4. Frequency that source meters will be tested/calibrated:

Calculation Existing source meters were installed approximately 2010. The new source meter for Well #3 will be installed in 2012. Each source meter will be tested for accuracy (calibrated) no later than the year 2018 for the existing source meters, and 2020 for the new (Well #3) source meter, and every 4 years thereafter.

Basis of calibration frequency: Calculations indicate that under current pumping, existing meters will not reach the total flow indicated for AWWA Repaired Meter Accuracy Standards for at least 9 years from the date of install. (The meter manufacture offers a limited warranty of a minimum of 10 years – see appendix). An 8-year initial calibration frequency is therefore justified to minimize costs. The 4-year followup calibration frequency is as suggested by the Public Utilities Commission.

Meters will be repaired or replaced if found not to meet the applicable AWWA standard.

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

Once installed, source meters will be read at least every 30 days at a minimum.

6. The following statement applies to source meters:

Source 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

To detect and minimize water losses within the system, a comprehensive leak detection survey of the water system will be completed annually (Option B).

### A. Option B: Leak Detection

1. Summary of findings for the most recent leak detection surveys including the following information:

No previous comprehensive leak detection surveys have been done, as leaks have not been suspected based on review of source meter readings.

2. Are pipe locations known? If not, include a statement that a pipe location survey will be conducted in order to perform leak detection.

Pipe locations are generally known. However, a pipe location survey will be conducted in order to perform leak detection if necessary.

3. Breakdown of pipe material, age, and length:

Distribution pipes are PVC, installed in approximately 1989.

4. Availability of contact points and adequacy of spacing:

Availability of contact points for leak detection is unknown.

5. Is pipe material non-metallic? If yes, as leaks are difficult to acoustically detect in non-metallic systems, what additional measures will be taken to detect leaks?

Pipes are believed to be non-metallic. Leaks will be detected by monitoring flows during minimal flow hours (i.e. middle of the night). The procedure for "Night Flow Leak Detection Methodology" is attached



to this document as an appendix. A summary of the procedure is as follows:

- A. A master distribution meter will be installed in the pumphouse. The meter will be observed during the middle of the night to detect flow patterns and minimum flow as a baseline. Any suspected leaks will be detected and repaired before setting the baseline.
- B. Future monitoring will be compared to the baseline to assess if leakage is present. Leaks will be found and fixed promptly.

6. Will zone meters be installed to assist with leak detection identification and location?

Because the entire system is small, zone meters will not be installed unless found to be expedient for leak detection. A master distribution meter will be installed as indicated.

7. Will future leak detection surveys be conducted in-house or contracted out?

Night-flow observation of the master distribution meter may be contracted or done in-house, with support from a qualified company. Further leak detection surveys will be contracted to a qualified company.

8. If in-house, what equipment will be used and what training will be required?

Master distribution meter – guidance of qualified professionals as to what flow pattern or threshold flow likely indicates leakage.

9. If in-house, describe the leak detection method to be used:

See #7 above.

10. Frequency of leak detection:

Leak detection will be conducted annually.

11. Will leak detection be done all at one time or staggered throughout the two years? If staggered, what is the timeline and what percentage of the system will be surveyed during each initiative?

Leak detection will be done for the entire system at one time.

12. Standard for leak detection:

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).

13. Repair of leaks detected:

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

**B. Pressure Management**

1. Existing minimum distribution pressure:

Approximately 40 psi, at pump house.

2. Existing maximum distribution pressure:

Approximately 60psi, at pump house.

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

The pressures given above represent the minimum and maximum pressure switch settings for the 2,000 gallon hydropneumatic tank.

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

None is currently known to exist.

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

C. 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?

No.

**III. Consumption Side Management**

A. Educational Outreach Initiative

1. Informational materials that will be used:

The following two fact sheets developed by NHDES will be distributed to customers to promote water conservation:

“*WD-DWGB-26-2 Water Efficiency Practices for Domestic Indoor Water Use*” and “*WD-DWGB-26-3 Water Efficiency Practices for Outdoor Water Use*”, available online at:

(<http://des.nh.gov/organization/commissioner/pip/factsheets/dwgb/documents/dwgb-26-2.pdf>) and (<http://des.nh.gov/organization/commissioner/pip/factsheets/dwgb/documents/dwgb-26-3.pdf>).

2. Rate of dissemination:

The Indoor Water Efficiency and the Outdoor Water Efficiency fact sheets will be distributed with association fee bills and the annual meeting notice.

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?

No.

6. Other outreach plans?

No.

#### **IV. Zoning Ordinance / Bylaws**

A. Are connections to the water system subject to any of the following water efficiency ordinances or bylaws?

1. Indoor

a) Water efficient fixtures beyond the existing plumbing code:

No.

2. Landscaping

a) Minimum topsoil requirements:

No minimum topsoil requirements. All areas within the water system boundary are already developed.

b) Use of native/drought tolerant plants and grasses:

Native plants are used in non-yard areas.

c) Area and slope restrictions for turf grass:

No restrictions.

3. Irrigation System

a) Prohibition or restrictions to irrigation systems:

Watering lawns and gardens as well as car washing etc. is limited to odd or even days based on address number, for a maximum of one hour per day.

b) Require soil moisture sensors:

No.

c) Require rain sensors:

No.

4. Other water efficiency ordinances:

None

**V. Water Use Restrictions**

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

Watering lawns and gardens, as well as car washing etc., is limited to odd or even days based on address number, for a maximum of one hour per day.

B. Who is responsible for enforcing restrictions?

Enforcement by the honor system has been adequate. Ultimately, the Homeowners Association Board of Directors is responsible for enforcement.

**VI. Reporting and Implementation**

A. The following statements apply to the Wentworth Acres Water System:

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."
2. "Activities outlined in the water conservation plan will be completed by water system personnel under the supervision of a certified water system operator."

## VII. Public Notification of Water Conservation Plan

Within seven days of submitting the conservation plan to DES, Wentworth Acres Homeowners Association will provide a copy of the application and report via certified mail with return receipt requested to:

1. The governing board of the municipality in which a proposed source is located (Town of Moultonborough Board of Selectmen)
2. All municipalities that will receive water from the water system (*none*)
3. All wholesale customers (*none*)
4. The regional planning commission serving the location of the proposed source (Lakes Region Planning Commission, Meredith).

The notified entities may provide the DES with written comments regarding the application within 21 days of receipt. All signed copies of the Certified Mail Return Receipt (the green card) must be forwarded to DES.

### Additional Attachments:

The Wentworth Acres Homeowners Association 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](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.

## VIII. NHDES Contact

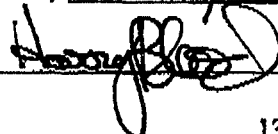
If questions arise regarding the Water Conservation Plan rules or reporting, contact:

Stacey Herbold, Water Conservationist  
New Hampshire Department of Environmental Services  
Drinking Water and Groundwater Bureau  
29 Hazen Drive, P.O. Box 95  
Concord, NH 03302-0095  
[stacey.herbold@des.nh.gov](mailto:stacey.herbold@des.nh.gov)  
Ph: (603) 271-0659  
FAX: (603) 271-0656

## IX. Water System Owner Certification and Signature

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.

Signature Owner Name (print): Harry Blood

System Owner Signature:  Date: 7-19-12

**WATER CONSERVATION PLAN - EXISTING SMALL COMMUNITY WATER SYSTEM  
WENTWORTH ACRES HOMEOWNERS ASSOCIATION  
MOULONBOROUGH, NEW HAMPSHIRE**

**APPENDICES  
TO  
WATER CONSERVATION PLAN**

**Appendices Table of Contents:**

Night Flow Detection Methodology ..... A-1  
Sensus Limited Warranty..... A-3

- \* Outreach Educational Materials developed by NHDES:
  - WD-DWGB-26-2 Water Efficiency Practices for Domestic Indoor Water Use
  - WD-DWGB-26-3 Water Efficiency Practices for Outdoor Water Use
  
- \* NHDES Ongoing Compliance Form and Appendices
- \* Source Meter Calibration Form
- \* Leak Worksheet

\* Note: these Appendices are available online at:  
[http://des.nh.gov/organization/divisions/water/dwgb/water\\_conservation/index.htm](http://des.nh.gov/organization/divisions/water/dwgb/water_conservation/index.htm)

## **Appendix:**

### **Night Flow Leak Detection Methodology**

#### **1. Distribution Meter**

- a. A 1-1/2" Sensus water meter capable of measuring low flows will be installed on the distribution line and located after treatment and storage. The meter make, model, and size will be forwarded to DES prior to purchase/installation for review and approval.
- b. The meter will be tested/calibrated per manufacturer's recommendation. The first meter test will commence upon expiration of the manufacturer's new meter accuracy warrantee.
- c. The distribution meter 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).

#### **2. Determining Water Use Thresholds**

- a. Night time flow analysis will be conducted as described in 3.b., below, and leaks isolated and pinpointed as described in 3.e through 3.h., below.
- b. Leaks will be repaired.
- c. Again, night time flow analysis will be conducted as described in 3.b., below. The lowest flow will be considered the baseline.
- d. The threshold above the baseline will be determined by considering the size, age, and history of the system.
- e. The baseline flow and proposed threshold will be submitted to DES for review and approval. The submittal will also include the reasoning and evidence behind the proposed threshold.

#### **3. Night Flow Analysis**

- a. Night flow analysis will be conducted annually.
- b. Water usage will be recorded every minute for one hour between 1 am and 3 am using a distribution meter. Users of the system will be requested prior to the night



flow analysis to refrain from using water between 1 am and 3 am on this date. Nighttime flow analysis will be conducted prior to sprinkler season if possible.

- c. If flows are above the threshold, then flows will continue to be recorded for an additional hour.
- d. If flows are still above the threshold, the previous step will be repeated again within 7 days.
- e. If again flows are above the threshold, a leak will be assumed. If possible, valves will be closed to isolate select portions of the distribution 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.
- f. 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.
- g. 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).
- h. Leaks will be repaired within 60 days of discovery unless a waiver is obtained in accordance with Env-Wq 2101.09.

Night Flow Detection Methodology Source:

NHDES, 6/6/2012.

Slightly modified by Horizons Engineering for Wentworth Acres, 7/4/2012

# Sensus Limited Warranty

## XIII. Batteries, iPERL System Components, AMR and FlexNet™ System AMI Interface Devices... (continued)

Remote Transceiver	1 year
iConA and FlexNet Electricity SmartPoint Module	1 year
iPERL System Battery and iPERL System Components	20 years*

\* Sensus will repair or replace non-performing:

- RadioRead® MXU (Model 505C, 510R and 520R) and Batteries,
- FlexNet Water or Gas SmartPoint Modules (configured to the factory setting of six transmissions per day) and batteries,
- iPERL System Batteries, and/or the iPERL System flowtube, the flow sensing and data processing assemblies, and the register ("iPERL System Components")

at no cost for the first ten (10) years from the date of Sensus shipment, and for the remaining ten (10) years, at a prorated percentage, applied towards the published list prices in effect for the year product is accepted by Sensus under warranty conditions according to the following schedule:

Years	Replacement Price	Years	Replacement Price
1-10	0%	16	55%
11	30%	17	60%
12	35%	18	65%
13	40%	19	70%
14	45%	20	75%
15	50%	>20	100%

Note: Software supplied and licensed by Sensus is warranted according to the terms of the applicable software license agreement. Sensus warrants that network and monitoring services shall be performed in a professional and workmanlike manner.

## XIV. Return...

Sensus' obligation, and Customer's exclusive remedy, under this Sensus Limited Warranty is, at Sensus' option, to either (i) repair or replace the product, provided the Customer (a) returns the product to the location designated by Sensus within the warranty period; and (b) prepays the freight costs both to and from such location; or (ii) deliver replacement components to the Customer, provided the Customer installs, at its cost, such components in or on the product (as instructed by Sensus).

The return of products for warranty claims must follow Sensus' Returned Materials Authorization (RMA) procedures. Water meter returns must include documentation of the Customer's test results. Test results must be obtained according to AWWA standards and must specify the meter serial number. The test results will not be valid if the meter is found to contain foreign materials. If Customer chooses not to test a Sensus water meter prior to returning it to Sensus, Sensus will repair or replace the meter, at Sensus' option, after the meter has been tested by Sensus. The Customer will be charged Sensus' then current testing fee. Sensus SmartPoints modules and MXU's returned must be affixed with a completed return evaluation label. For all returns, Sensus reserves the right to request meter reading records by serial number to validate warranty claims.

For products that have become discontinued or obsolete ("Obsolete Product"), Sensus may, at its discretion, replace such Obsolete Product with a different product model ("New Product"), provided that the New Product has substantially similar features as the Obsolete Product. The New Product shall be warranted as set forth in this Sensus Limited Warranty.

THIS SECTION XIV SETS FORTH CUSTOMER'S SOLE REMEDY FOR THE FAILURE OF THE PRODUCTS, SERVICES OR LICENSED SOFTWARE TO CONFORM TO THEIR RESPECTIVE WARRANTIES.

## XV. Warranty Exceptions and No Implied Warranties...

This Sensus Limited Warranty does not include costs for removal or installation of products, or costs for replacement labor or materials, which are the responsibility of the Customer. The warranties in this Sensus Limited Warranty do not apply to goods that have been: installed improperly or in non-recommended installations;

installed to a socket that is not functional, or is not in safe operating condition, or is damaged, or is in need of repair; tampered with; modified or repaired with parts or assemblies not certified in writing by Sensus, including without limitation, communication parts and assemblies; improperly modified or repaired (including as a result of modifications required under section XIV); converted; altered; damaged; read by equipment not approved by Sensus; for water meters, used with substances other than water, used with non-potable water, or used with water that contains dirt, debris, deposits, or other impurities; subjected to misuse, improper storage, improper care, improper maintenance, or improper periodic testing (collectively, "Exceptions."). If Sensus identifies any Exceptions during examination, troubleshooting or performing any type of support on behalf of Customer, then Customer shall pay for and/or reimburse Sensus for all expenses incurred by Sensus in examining, troubleshooting, performing support activities, repairing or replacing any Equipment that satisfies any of the Exceptions defined above. The above warranties do not apply in the event of Force Majeure, as defined in the Terms of Sale.

THE WARRANTIES SET FORTH IN THIS SENSUS LIMITED WARRANTY ARE THE ONLY WARRANTIES GIVEN WITH RESPECT TO THE GOODS, SOFTWARE LICENSES AND SERVICES SOLD OR OTHERWISE PROVIDED BY SENSUS. SENSUS EXPRESSLY DISCLAIMS ANY AND ALL OTHER REPRESENTATIONS AND WARRANTIES, INCLUDING WITHOUT LIMITATION, WARRANTIES AS TO FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY, NON-INFRINGEMENT AND TITLE.

SENSUS ASSUMES NO LIABILITY FOR COSTS OR EXPENSES ASSOCIATED WITH LOST REVENUE OR WITH THE REMOVAL OR INSTALLATION OF EQUIPMENT. THE FOREGOING REMEDIES ARE CUSTOMER'S SOLE AND EXCLUSIVE REMEDIES FOR THE FAILURE OF EQUIPMENT, LICENSED SOFTWARE OR SERVICES TO CONFORM TO THEIR RESPECTIVE WARRANTIES.

## XVI. Limitation of Liability...

SENSUS' AGGREGATE LIABILITY IN ANY AND ALL CAUSES OF ACTION ARISING UNDER, OUT OF OR IN RELATION TO THIS AGREEMENT, ITS NEGOTIATION, PERFORMANCE, BREACH OR TERMINATION (COLLECTIVELY "CAUSES OF ACTION") SHALL NOT EXCEED THE TOTAL AMOUNT PAID BY CUSTOMER TO SENSUS UNDER THIS AGREEMENT. THIS IS SO WHETHER THE CAUSES OF ACTION ARE IN TORT, INCLUDING, WITHOUT LIMITATION, NEGLIGENCE OR STRICT LIABILITY, IN CONTRACT, UNDER STATUTE OR OTHERWISE.

AS A SEPARATE AND INDEPENDENT LIMITATION ON LIABILITY, SENSUS' LIABILITY SHALL BE LIMITED TO DIRECT DAMAGES. SENSUS SHALL NOT BE LIABLE FOR: (I) ANY INDIRECT, INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES; NOR (II) ANY REVENUE OR PROFITS LOST BY CUSTOMER OR ITS AFFILIATES FROM ANY END USER(S), IRRESPECTIVE OF WHETHER SUCH LOST REVENUE OR PROFITS IS CATEGORIZED AS DIRECT DAMAGES OR OTHERWISE; NOR (III) ANY IN/OUT COSTS; NOR (IV) MANUAL METER READ COSTS AND EXPENSES; NOR (V) DAMAGES ARISING FROM MAINCASE OR BOTTOM PLATE BREAKAGE CAUSED BY FREEZING TEMPERATURES, WATER HAMMER CONDITIONS, OR EXCESSIVE WATER PRESSURE. "IN/OUT COSTS" MEANS ANY COSTS AND EXPENSES INCURRED BY CUSTOMER IN TRANSPORTING GOODS BETWEEN ITS WAREHOUSE AND ITS END USER'S PREMISES AND ANY COSTS AND EXPENSES INCURRED BY CUSTOMER IN INSTALLING, UNINSTALLING AND REMOVING GOODS. "END USER" MEANS ANY END USER OF ELECTRICITY/WATER/GAS THAT PAYS CUSTOMER FOR THE CONSUMPTION OF ELECTRICITY/WATER/GAS, AS APPLICABLE.

The limitations on liability set forth in this Agreement are fundamental inducements to Sensus entering into this Agreement. They apply unconditionally and in all respects. They are to be interpreted broadly so as to give Sensus the maximum protection permitted under law.

To the maximum extent permitted by law, no Cause of Action may be instituted by Customer against Sensus more than TWELVE (12) MONTHS after the Cause of Action first arose. In the calculation of any damages in any Cause of Action, no damages incurred more than TWELVE (12) MONTHS prior to the filing of the Cause of Action shall be recoverable.