

APPALACHIAN STATE UNIVERSITY
WATER TREATMENT PLANT
PWS ID #NC 01-95-101
WATER SHORTAGE RESPONSE PLAN (WSRP)

Physical Plant Department

August 25, 2015

APPALACHIAN STATE UNIVERSITY WATER SHORTAGE RESPONSE PLAN (WSRP)

Introduction

As a community water system subject to G.S. 143-355 (l) Appalachian State University is required to submit a Water Shortage Response Plan (WSRP) as part of their Local Water Supply Plan (LWSP). Recently adopted rules governing water use during droughts and water emergencies (15A NCAC 02E. 0607) stipulate specific issues that must be included in those plans. This plan has been submitted to comply with G.S. 143-355.

A. Authority for WSRP Implementation Responsible authority for enacting the Plan:

Primary Authority:

Michael J. O'Connor, P.E.
Physical Plant Director
(828)262-3190 x 106
oconnormj@appstate.edu

Alternate authority:

Don Lusk,
Water Plant Superintendent
(828)262-3197
luskdr@appstate.edu

B. Notification of WSRP Activation and Conservation Measures

All water users and system employees will be notified when the WSRP has been implemented. Notification will be accomplished by:

- University email system
- University web pages
- University news paper
- Radio public service announcements

Additionally, the Physical Plant will publicize its water conservation program through internal campus communications and sponsorship of workshops and special events.

C. Measuring Severity Definitions

Level I: Voluntary Conservation

Conditions indicate potential for water supply shortages; voluntary conservation is encouraged.

Level 2: Mandatory Restriction

Water supplies are measurably lower than the seasonal norm and are diminishing. Mandatory restriction measures are imposed.

Level 3: Emergency Response

The system is experiencing a water shortage; drinking water supply is clearly inadequate and more stringent restriction measures must be imposed.

D. Triggers

The Triggers in the following table D-1 will be used for moving to more and less restrictive drinking water use reduction measures. As a reference point, normal water supply conditions will be in effect when:

The University reservoir is at or above 75% of capacity (225 million gallons in storage) and there are no threats to impede the normal operation of the reservoir, Howards Creek supplementary pumping station, treatment plant or water distribution system.

Table D-1

SYSTEM SUPPLY TYPE	VOLUNTARY LEVEL US Drought Monitor indicates abnormally dry or moderate drought in your area	MANDATORY LEVEL US Drought Monitor indicates moderate or severe drought in your area	EMERGENCY LEVEL US Drought Monitor indicates severe or extreme drought in your area
RESERVOIR (Monitor lake levels daily during a water shortage situation.)	- Less than 75% % of remaining usable storage. - 315 days of supply remaining. - Reservoir levels less than 4 ft. of full pool.	- Less than 60% of remaining usable storage. - 270 days of supply remaining. - Reservoir levels less than 8 ft. of full pool.	- Less than 50 % of remaining usable storage. - 243 days of supply remaining. - Reservoir levels less than 12 ft. of full pool.
SECONDARY SOURCE RUN-OF-RIVER HOWADS CREEK (Measure streamflow daily)	- Water demand exceeds 10 % of flow above intake.	- Water demand exceeds 15 % of flow above intake.	- Water demand exceeds 25% of flow above intake. °

CONTAMINATION OF RESIVOIR OR MAJOR EQUIPMENT, TANK, OR PIPE LINE FAILURE			Immediate implementation of Emergency Level
--	--	--	---

E. Conservation Measures

VOLUNTARY LEVEL: Water Use Reduction

University reservoir has less than 75% water in storage with no immediate rain relief in site. The Town of Boone and or Blowing Rock are experiencing drought conditions that may require the University to provide supplemental water through future interconnects.

- Issue a voluntary water shortage advisory via campus email and APPALNET web page.
- Increase conservation educational campaign.
- 5% potable water use reduction goal (system-wide as well as individual users).
- Request voluntary conservation from all water users.
- University Physical Plant and Academic Departments to suspend washing of vehicles and watering of well established existing vegetation.

MANDATORY LEVEL: Water Use Restrictions (in addition to voluntary measures)

University reservoir has less than 60% water in storage with not immediate rain relief in site and the Town of Boone and or Blowing Rock are experiencing drought conditions that require the University to provide supplemental water through future interconnects.

- Issue a water shortage alert.
- 10% potable water use reduction goal (system-wide as well as individual users).
- Ban or restrict specific Class 3 (nonessential) uses.
- Restrict specific Class 2 (socially & economically important) uses.
- Monitor compliance with water use bans and enforce when necessary.
- University Physical Plant and Academic Departments to suspend watering of all exterior vegetation.
- University academic program to reduce optional water use in laboratories and class rooms.

EMERGENCY LEVEL: Water Use Restrictions/Bans (and/or Rationing)

University reservoir has less than 60% water in storage (or has experienced a major water treatment system failure or contamination) with not immediate rain relief in site and the Town of Boone and or Blowing Rock are experiencing drought conditions that require the University to provide supplemental water through future interconnects.

- Issue a water shortage emergency.
- Maximum 25% potable water use reduction goal (system-wide as well as individual users).

- Ban on all Class 3 (nonessential) water uses.
- Ban or restrict specific Class 2 (socially & economically important) uses.
- Aggressive compliance monitoring and enforcement.

F. Levels Of Response

ESSENTIAL DRINKING WATER USES

In the event of a water shortage, the following drinking water uses have been determined to be essential uses of potable water:

- Residence Halls
- Food Services
- Infirmary
- Steam Plant Make up water
- Broyhill Inn and Conference Center
- Fire fighting

SOCIALLY/ECONOMICALLY IMPORTANT DRINKING WATER USES

In the event of a water shortage, the following drinking water uses have been determined to be socially or economically important uses of potable water:

- Academic Buildings
- HVAC Cooling Towers
- Landscape irrigation to establish new plantings
- Science Laboratory uses
- Retail Food Services Franchise Restaurant Use

NON-ESSENTIAL DRINKING WATER USES

In the event of a water shortage, the following drinking water uses have been determined to be non-essential uses of potable water:

- General Landscape Irrigation
- Vehicle washing (except to clean heavily soiled vehicles for maintenance reasons)
- Street Sweeping
- Public Use (e.g. non-essential use)

G. Enforcement

The University will enforce water use restrictions thorough normal regulations established by the University and the University Resource Manual and Human Resources procedures.

H. Public Review

This plan will be published on the University Physical Plant Web site.

I. Variances And Variance Criteria

Any variance request to the requirements plan will be addressed on a case by case basis by the University Physical Plant Director.

J. Evaluation

This plan will be evaluated and modified when required if the established response actions do not achieve the desired savings to ensure adequate water supply to meet essential drinking water and fire flow requirements. The following table J-1 lists potential changes.

Table J-1

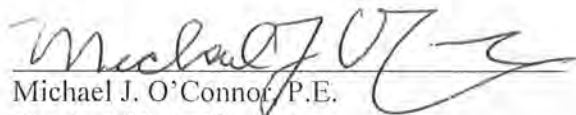
Level	Reduction Goal Average daily water use	Trigger Days of remaining storage	Current Conservation Measures	Revised Conservation Measures
Voluntary	5%	315	<ul style="list-style-type: none"> - Issue a voluntary water shortage advisory via campus email and APPALNET web page. - Increase conservation educational campaign. - Request voluntary conservation from all water users. - University Physical Plant and Academic Departments to suspend washing of vehicles and watering of well established existing vegetation. 	<ul style="list-style-type: none"> - Increase public education on the need to conserve water. - Reclassify additional water uses as nonessential - Ask students in residence halls to only do full loads of laundry.
Mandatory	10%	270	<ul style="list-style-type: none"> - Issue a water shortage alert. - Ban or restrict specific Class 3 (nonessential) uses. - Restrict specific Class 2 (socially & economically important) uses. - Monitor compliance with water use bans and enforce when necessary. - University Physical Plant and Academic Departments to suspend watering of all exterior vegetation. - University academic program to reduce optional water use in laboratories and class rooms. - Continue conservation pricing and assess excess use surcharges - Limit socially/economically 	<ul style="list-style-type: none"> - Ban all nonessential uses of water. -Decrease times and duration of allowable landscape irrigation.

			important and nonessential uses of water. - Restrict times and duration of landscape irrigation	
Emergency	25%	225	- Issue a water shortage emergency. - Ban on all Class 3 (nonessential) water uses. - Ban or restrict specific Class 2 (socially & economically important) uses. - Aggressive compliance monitoring and enforcement.	- Reclassify additional water uses as nonessential. - Consider cancellation of non-essential campus activities.

K. Town of Boone Interconnect

Appalachian State University and the Town of Boone have a water system interconnection. This interconnection enhances the water security of both the University and the Town of Boone.

During emergency situations this connection allows the transfer of water between the two systems.


 Michael J. O'Connor, P.E.
 Physical Plant Director
 Appalachian State University

10/19/15
 Date