

Water Conservation Measures

The University's 17 institutions use approximately 2.4 billion gallons of water per year. In early October, President Bowles requested that campuses take extraordinary steps to reduce non-essential water consumption and to promote water conservation measures among faculty, staff and students. The campuses reported the specific measures that had been implemented, as well as the projected reductions in water use. (List of best practices attached.)

Early responses from the Chancellors showed about a 5.4% reduction. President Bowles conducted follow-up conversations on conservation efforts with some of the Chancellors and the Finance Division also worked with the campuses. Revised projections are now 10.7% in avoided water usage.

Projected savings or avoidance of water use are: 707,000 gallons per day, 21.1 million gallons per month, or 258 million gallons per year. The university's usage for October 2007 system-wide was 16% less than September 2007. According to data reported by the campuses, 39.2 million gallons less water was used. Individual campus performance is attached.

**UNC Water Consumption Reductions
Between October 2007 and September 2007**

	Oct 07 Water in Gallons	Sep 07 Water in Gallons	Differential in Percent	Differential in Gallons
ASU	13,093,000	10,295,000	27%	2,798,000
ECU	21,044,170	25,499,920	-17%	-4,455,750
ECSU	3,757,000	4,176,000	-10%	-419,000
FSU	698,000	1,127,000	-38%	-429,000
NCA&T	7,948,996	7,992,380	-1%	-43,384
NCCU	4,468,552	5,366,900	-17%	-898,348
NCSCA	1,584,234	1,584,446	0%	-212
NCSU	22,116,846	24,081,226	-8%	-1,964,380
UNCA*	n/avail	n/included	0%	n/avail
UNC-CH	61,306,000	95,183,000	-36%	-33,877,000
UNCC*	25,069,968	28,553,481	-12%	-3,483,513
UNCG	18,942,352	15,724,456	20%	3,217,896
UNCP	5,559,810	5,602,000	-1%	-42,190
UNCW*	20,581,821	19,917,891	3%	663,930
WCU	13,328,800	12,478,000	7%	850,800
WSSU	6,418,810	7,128,159	-10%	-709,348
NCSSM	1,859,300	2,150,300	-14%	-291,000
UNC-TV	236,250	480,750	-51%	-244,500
NCARB	130,900	115,940	13%	14,960
Total	228,144,809	267,456,848	-15%	-39,312,039
Total without UNCC	203,074,841	242,253,139	-16%	-39,178,298

Source: Reports filed by campuses.

* Excludes UNCA due to inconsistent data for October; UNCA used 3,349,772 gallons in September 2007

* UNCC bad meter replaced in August 2007

* UNCW normalized for number of days.

Best Practices

Water Conservation Measures

1. Water Conservation measures recently implemented on the UNC campuses to conserve water in response to current drought conditions in the state are summarized below.
 - Water shortage plans developed
 - Water conservation committees established
 - Facilities staff participation on city of Raleigh Water Conservation Taskforce which develops regional strategies
 - Public awareness campaigns including weekly notices to entire campus community
 - Promotion via various media outlets, with tips to conserve water on campus and at home
 - Campaigns encouraging the campus community to report leaking faucets, toilets, etc. to reduce water loss
 - Telephone numbers provided to report leaks and drips
 - E-mail notices sent to students and staff to reduce water use
 - Dissemination of the Water Conservation plan throughout campus
 - Publish daily updates of water conservation progress online
 - Daily monitoring of major water meter locations
 - Monitor consumption levels to measure progress
 - Facilities staff inspection of common areas to identify and repair water leaks
 - Eliminate all open water leak calls/work orders
 - Perform daily checks on leaks, sensors, and operation of fixtures
 - Planned reduction in turnaround time for water leak calls is 4 hours
 - Water conservation measures implemented through Energy Performance Contract estimated to save 4 million gallons a year have been completed

Grounds

- Ceased all irrigation from City water
- Reduce irrigation of athletic fields (even if well water)
- Eliminate spray irrigation for landscaping and lawns
- Essential plant vegetation watering to be pulled from Lake Raleigh
- Convert additional truck(s) to use non-potable Lake Raleigh water for plant material instead of City of Raleigh water
- Cease rye grass installation across the campus
- Install rain sensor overrides on all field irrigation controllers
- Discontinue water use for cleaning of streets and pathways
- Reduce grounds potable water consumption by 98%
- Eliminate spray irrigation with potable water
- Use recycled water from stormwater collection system for horticulture watering
- Deferred new plantings and seasonal flowers
- Stopped/postponed landscaping contracts for new or remodeled facilities
- Cancelled orders for new landscaping materials
- Water quantities reduced to minimum amount needed to sustain plantings, with hand watering by non-potable sources wherever feasible

Building Systems and Process Cooling

- Labs using single pass cooling systems are asked to minimize usage based on their needs
- Recovered foundation drain water for use in chiller plant cooling towers
- Review process cooling applications and eliminate once through cooling
- Pursue permitting and digging of wells for utility plants for cooling tower make-up
- Raise building temperature and set points on air handlers
- Raise chilled water set points

- Raise set points on cooling towers
- Shut down any water-cooled bearing equipment that is non-essential
- Write work requests to check conductivity controllers and water control valves on cooling towers

Facilities / Maintenance

- Discontinue vehicle wash
- Portable car wash with built-in water recycling system
- Wash no exterior surfaces unless needed for sanitation
- No window or power washing
- Dual-flush toilet valves ordered for installation in some buildings
- Adjust control valves in the urinals to conserve water
- Pilot installation of hand sanitizers in bathrooms

Housekeeping

- Sweep or vacuum hard surfaces rather than mopping
- Cease the steam cleaning of carpet for as long as feasible
- Eliminate all water-based carpet cleaning by Housekeeping and use only dry chemical cleaning machine
- Reducing housekeeping wet mopping by 50%

Other Measures

- Ornamental fountains and pools turned off
- Outdoor pools are closed and covered
- Shut off water levelers for recreational water use in swimming pools
- Review procedures at animal rooms for opportunities
- Eliminated tap water service at catering events

- Water served only upon request at dining services
 - Turn off non-essential ice-makers
 - Suspend fire hydrant flushing
2. Notices have been sent to campus occupants encouraging implementation of these measures to save water.
- Restrict showers to once a day
 - Limit showers to four minutes or less
 - Turn off water while lathering
 - Use the lowest volume needed to flush toilets
 - Do not leave water running while brushing teeth or shaving
 - Do not leave water running while washing dishes or laboratory items
 - Dishwasher and clothes washer to run with full loads and reduce water settings for smaller loads
 - Store water in the refrigerator instead of running tap water for cold water
 - Reuse dish and shower water to water plants
 - Use the garbage can instead of the garbage disposal
 - Use dry clean-up methods where possible
 - Report any leaks to maintenance immediately for repair
 - Use water wisely
3. Water conservation has been an ongoing effort throughout the university system. The following is a list of some of those measures already in place on the various campuses.
- Implementation of long-term improvements to reduce potable water consumption
 - Aggressively pursue leaks and dripping faucets
 - Installation of low-flow aerators on faucets throughout campus
 - Installation of low-flow shower heads in the dorms and locker rooms
 - Ongoing installation of automatic flush valves in all new or renovated rest-rooms

- Ongoing installation of dual-flush toilets in some residence halls and public bathrooms
- Use of rainwater to flush toilets
 - Some water-free urinals installed
- Low water use washing machine
- Installation of water-efficient dishwashing machines in Dining Halls
- Rain-water cisterns to irrigate the landscape
- Xeriscaping (planting drought resistant, native landscaping)
 - Weather-controlled Maxicom irrigation system that monitors weather conditions and rainfall amounts to adjust irrigation rates
- Backwash and filter system for indoor and outdoor pools
- New closed-loop water distillation systems in some buildings
- Perform annual steam trap survey to assess system issues
- Steam and condensate leaks repaired to save makeup water
- Increased cycles of concentration in the cooling towers increasing ability to recirculate water before it is discharged
- Repairing water leaks is a high priority for facilities staff
- Train custodial staff on water conservation measures
- Ongoing encouragement of students, faculty and staff to conserve water
- Campus-wide energy and water conservation awareness programs

4. Additional measures under consideration

- If warm weather persists, raising room temperatures to reduce chilled water evaporative cooling from cooling towers
- Food vendor equipment modifications to redirect the once through condenser water on the walk-in units to cooling tower makeup
 - Or replacement of the water-cooled condensers with outside air-cooled condensers
- Investigate replacing laundry equipment with more water-efficient models
- Install foot-pedal operated faucets in Dining Hall kitchen