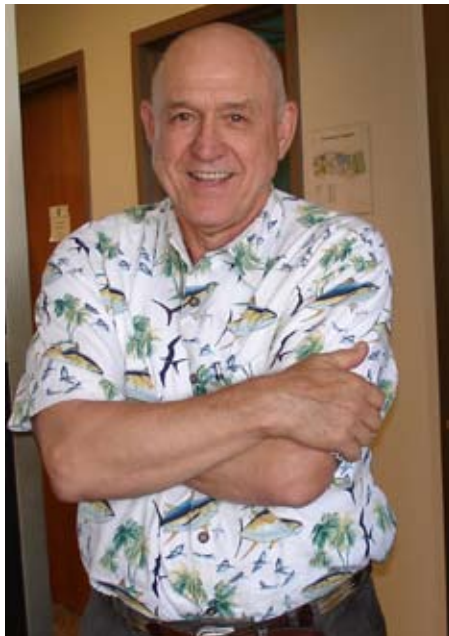


EMS Eco-Notes

supplemental



EMS at the Charleston NCCOS Facilities: A Review

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The Center for Human Health Risk (CHHR) at the Hollings Marine Laboratory (HML) has used its unique partnership framework and the NCCOS Environmental Management System (EMS) to enhance the environmental stewardship and safety culture of our partners and the campus on which we reside. HML partners include two NCCOS Centers (CHHR and the Coastal Center for Environmental



*The Hollings Marine Laboratory in Charleston, SC,
home of the Center for Human Health Risk*

Health and Biomolecular Research), the College of Charleston, the South Carolina Department of Natural Resources, the Medical University of South Carolina, and the National Institute of Standards and Technology. All HML partners support laboratories and associated research operations on the campus of the South Carolina Marine Resources Center, located near Charleston, SC. Approximately 400 researchers and support staff work on the SC Marine Resources Center including over 75 graduate and undergraduate students. Approximately 110 of these individuals occupy space in the HML.

Since it began operations in 2000, CHHR/HML has included all of our partners in our environmental management and safety programs, including hazardous waste recycling and treatment. By including the many students in the HML in a continuous process of training, outreach, technical assistance, and auditing, the next generation of environmental professionals are learning to be responsible environmental citizens. The founding concept on which the HML is based is that the partners can accomplish more working together than they can by working independently. This has clearly been the case for CHHR/NCCOS EMS and safety programs. The combined CHHR/HML programs are clearly much improved over the individual programs that existed prior to the establishment of the HML.

Historically, all of the facilities at the Marine Resources Center—including the HML—individual laboratories and partners collected their waste and disposed

In some cases individual researchers treated or neutralized the waste themselves and disposed of it down the sewer.

Fred Holland, September 2008



Advanced filtration systems allow reuse of seawater.

of them individually. Because the volume of waste collected by specific researchers was generally small, the waste frequently accumulated in the individual labs for long time periods. In some cases the individual researchers treated or neutralized the waste themselves and disposed of it down the sewer. In other cases, the waste was turned over to a professional when an amount accumulated that was sufficiently large for cost-effective disposal. When Rick Meitzler was hired as the NCCOS Safety Officer in 2004, he led the charge to collect and dispose of hazardous waste throughout the HML, recycling as much of it as possible. This new approach reduces the safety risk to of the individual laboratory researchers because most hazardous materials are stored in the lab for a relatively brief time. This new approach also ensured less of the waste was discharged to the environment. For instance, prior to 2004, Rebecca Pugh, manager of

the NIST Marine Environmental Specimen Bank neutralized 15-20 gallons of acid a month before releasing the treated water into the local sewer. During the neutralization process, Rebecca was exposed to hazardous material and none of the waste was recycled. Rebecca was also never certain whether she had neutralized the waste appropriately because she performed this task so infrequently. The current CHHR/HML systemized



Fred leading an open house. HML's lobby is lit by sunlight that comes through a large window.

collection of the acid for proper disposal assures that it is adequately handled by a professional waste disposal team and the environment is protected to the maximum possible degree.

The HML building was designed to provide a safe, secure, and environmentally-friendly work environment while at the same conserving natural resources

and energy to the greatest extent possible. To ensure researchers are exposed to the minimum possible risk to laboratory-based air pollutants, the HML building has a one-pass system for inside air. The high energy and costs for this safety feature are tempered by large windows and skylights that allow natural light to reduce the amount of artificial light required while at the same time providing the natural lighting preferred by CHHR/HML staff and researchers. In addition, most HML lighting systems use motion sensors so lighting is only provided when it is needed. The window systems are also designed to minimize the impacts of excess heating during the summer and heat loss during the winter.

Recently, the CHHR/HML engineering team, led by Martin Burnett, recalibrated the sensors for the cool-

ing tower system resulting in a substantial reduction in water use (~1.7 million gallons/year) The engineering team also implemented a preventative maintenance program to routinely check and recalibrate all motors, lighting systems, sensors, controls, and plumbing systems. The preventative maintenance program makes sure the infrastructure is operating as efficiently as possible, minimizing water and energy use. Supporting an on-site engineering team that sustains environmentally-friendly operations is cheaper than paying excessive energy and water bills.

In summary, the partnership culture of the Hollings Marine Laboratory has provided NCCOS the opportunity to influence the environmental stewardship and safety culture of the entire SC Marine Resource Center, as well as the next generation of environmental professionals. The many students trained at the HML will take NCCOS's environmental stewardship ethic and culture with them as they move into their professional careers. In a sense, CHHR/HML is using the train-the-trainers model to reduce our environmental footprint as well as the environmental footprint of our partners.



The Magnetic Nuclear Resonance facility was constructed to the specifications of the instruments, ensuring accurate work and less maintenance.



Skylights flood interior hallways, saving electricity. Researchers and other employees prefer the natural light to bulbs.



Cleve and Kevin on the Johnson control panel. The on-site engineering team sustains environmentally-friendly operations is less costly than paying excessive energy and water bills.



Big windows on side of building allow plenty of light to enter the interior of the building.



Maintaining deionized water lines in a reduced dust environment.

Please be environmentally responsible and only print this newsletter if necessary

<http://coastalscience.noaa.gov/ems/>