

# 2000-2015

# Building A Healthy & Sustainable Future

When the millennium began, the World Trade Center stood tall, no one knew about Facebook and the influence of technology was expanding. But a new order emerged on September 11, 2001, when hijacked planes hit the World Trade Center, the Pentagon and the Shanksville, PA field. The decade and years to come would be dominated by the war on terrorism as the impact of the internet grew and social structures were reshaped.



Construction to expand Atlantic Treatment Plant from 36 to 54 MGD began in 2006. The \$173 million endeavor that made this HRSD's largest plant, as well as the most expensive capital initiative of the era, was completed in 2011.



### Ensuring Wastewater is not Wasted Water

Virginia Water Control Law was amended in 2000 to promote the reclamation and reuse of wastewater. HRSD led the way with the Commonwealth's first municipal industrial water reuse project. The York River Treatment Plant began delivering 500,000 gallons per day of highly treated effluent to the adjacent Yorktown Refinery in 2002.

Construction of a project to deliver over 30,000 gallons of reclaimed water from the King William Treatment Plant to the Nestlé Purina cat litter production facility was initiated in 2015 to supplement the stressed groundwater supply. While not a traditional reuse project, HRSD partnered with the U.S. Navy at the Atlantic Treatment Plant to allow the Navy to use the thermal energy in the Atlantic Treatment Plant's effluent as a heating and cooling source for the Navy's Dam Neck Annex, earning a Presidential Energy Award in 2012.



Mike Chapman monitors the flow of reclaimed water from the York River Treatment Plant to the Yorktown Refinery in 2002. This pioneering initiative, considered a model of cooperation between jurisdictions, agencies and regulators, ended in 2011 when the refinery ceased production.



Project Manager Bruce Husselbeck and Karen Harz, HRSD's first female plant manager, review plans for the Chesapeake-Elizabeth Treatment Plant upgrade that began in 2004.



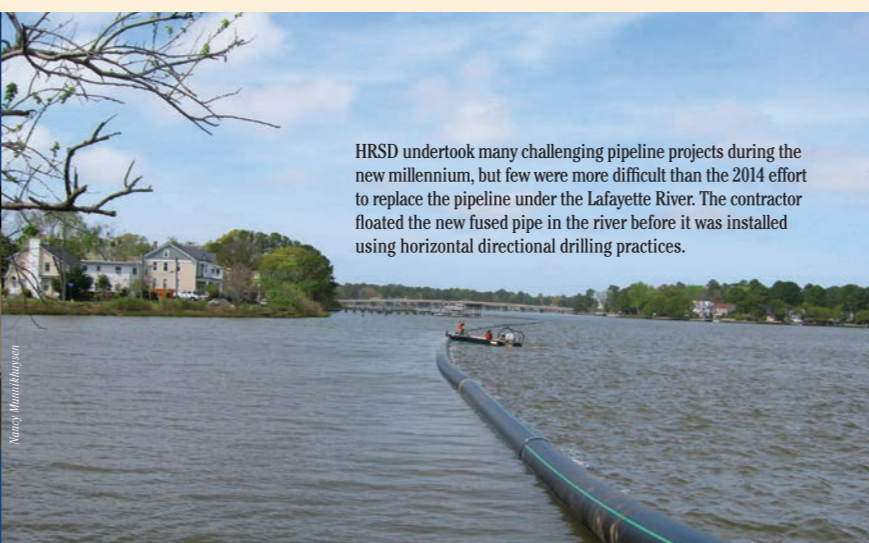
Technical Services Division employees Kevin Parker and Chet Dyer collect samples of Nansmond Treatment Plant effluent in 2007 using patented equipment to reduce contamination. This equipment, developed by HRSD Environmental Scientist Danny Barber, was just one of several patents obtained by HRSD employees during the first 15 years of the millennium.



Robert F. Kennedy, Jr. speaks during the 2010 opening of the Nansmond Stravite Recovery Facility, which used Ostara's Pearl® process to produce the beneficial fertilizer product Crystal Green®.



In 2012, Army Base Treatment Plant staff became the first in the nation to receive a 100% Performance Award for 25 consecutive years of perfect permit compliance. They would retain the record for consecutive years of perfect compliance through 2015.



HRSD undertook many challenging pipeline projects during the new millennium, but few were more difficult than the 2014 effort to replace the pipeline under the Lafayette River. The contractor hoisted the new fused pipe in the river before it was installed using horizontal directional drilling practices.



The 9/11 attacks ushered in the longest period of sustained conflict in the nation's history. HRSD employees who served our nation as members of the Reserves and National Guard were deployed with increasing frequency.



- 2000** King and Queen County was added to HRSD's territory.
- 2001** The Atlantic Treatment Plant hosted its first Earth Action Day.
- 2002** On September 24, Secretary of Natural Resources W. Taylor Murphy, Jr. launched Virginia's first Industrial Water Reuse Project at the York River Treatment Plant.
- 2003** The Training Center, Automotive, Electrical and Instrumentation facility opened at the Air Rail Avenue Complex.  
The U.S. EPA recognized HRSD as a Clean Water Partner for the 21st Century.
- 2004** HRSD received the first AMSA Excellence in Management Award.
- 2006** Ted Henifin became General Manager.
- 2008** A new HRUBS billing system was implemented.  
A \$60 million upgrade to further reduce nutrient discharges began at the York River Treatment Plant.
- 2009** Construction started on the \$38 million project to add advanced 5-stage Biological Nutrient Removal (BNR) to the Nansmond Treatment Plant.
- 2010** A \$109 million project to add BNR and upgrade existing facilities started at the Army Base Treatment Plant. The Regional Residuals Facility opened at the Nansmond Treatment Plant. HRSD entered into a Consent Decree with U.S. EPA to address wet weather overflows in the regional sanitary sewer system. The U.S. EPA established the Chesapeake Bay TMDL, which required HRSD to further reduce nutrient discharges by 2017. VELAP accredited the Central Environmental Laboratory.
- 2011** The Mathews Treatment Plant was demolished after completion of a 19-mile pipeline to convey flows to the York River Treatment Plant.
- 2012** Construction of a \$103 million project to enhance nutrient removal, increase hydraulic capacity and replace aging equipment began at the Virginia Initiative Plant.
- 2013** On September 13, a ribbon-cutting ceremony was held for the Atlantic Treatment Plant's Combined Heat and Power System, the largest of its type in Virginia.
- 2014** The Enterprise Resource Planning (ERP) system was initiated to integrate financial, procurement and human resources software needs. HRSD's Consent Decree was modified to allow HRSD to increase regional wet weather capacity by rehabilitating and improving infrastructure owned by local governments.
- 2015** On November 5, HRSD celebrated the 75th anniversary of its creation by public referendum and the graduation of its 33rd apprentice class.



James River Treatment Plant's \$31.7 million upgrade that included installation of Integrated Fixed-film Activated Sludge (IFAS), an innovative nutrient removal technology, was completed in 2012.



The new North Shore Operations Center, HRSD's first design-build project and first LEED-certified facility, was completed in 2012.



The new South Shore Operations Center, a Silver LEED-certified building fully occupied in 2013, features a data center designed to withstand a Category 4 hurricane.

### Regulatory Requirements Drive Capital Expenditures

As America struggled to find its economic footing following the global recession of 2008, HRSD worked diligently to balance its focus on stewardship of ratepayers' hard earned dollars with its mission of environmental stewardship. The comprehensive Financial Policy adopted in 2009 was founded on the principal of sustainability and focused on long-range planning to ensure HRSD's financial viability.

A mandate to meet new nutrient reduction goals for the Chesapeake Bay, aging infrastructure and capacity requirements converged to create the largest Capital Improvement Program in HRSD's history. Major upgrades were required for the Army Base, Nansmond, James River, Virginia Initiative and York River treatment plants. These projects, combined with the Atlantic Treatment Plant expansion, needed pipeline replacements, pump station rehabilitations and other endeavors resulted in capital spending of \$1.24 billion from 2000-2015.

However, the emphasis on fiscal responsibility meant wastewater treatment remained a bargain in Hampton Roads during the first 15 years of the millennium as the typical customer continued to pay less than \$1 a day to protect public health and treasured waterways.

### Innovation, Investment and Foresight Achieve Sustainable Solutions

HRSD's commitment to sustainability fostered innovation and led to investment in pioneering initiatives to minimize resource use and reduce the cost of nutrient removal compliance. HRSD became the first on the East Coast to join in a public-private partnership with Ostara to use their Pearl® process to recover nutrients from wastewater and transform them into the environmentally-friendly fertilizer product Crystal Green®.

Another public-private partnership made possible the first implementation of the innovative DEMON® process in the Western Hemisphere at the York River Treatment Plant. In addition, the first implementation of the ANITA™ Mox process in North America took place at the James River Treatment Plant. These efforts and others yielded a significant return on investment by reducing operational costs as well as minimizing the capital investment required to construct new systems.

HRSD also embraced green building practices, constructing two new LEED-certified operations centers and installing green roofs where practical. Among the many innovative resource recovery initiatives was a project to convert digester gas to energy at the Atlantic Treatment Plant.

### Public Outreach and Partnerships Enhance Environmental Awareness

Community engagement and educational activities expanded during the 21st century as HRSD sought support for its many new initiatives. Special events such as the annual Earth Action Day encouraged students' interest in the environment. Celebrate Farming Days educated public officials and neighbors about the value of land application of Nutri-Green® biosolids. HRSD developed educational campaigns such as My Flush Counts and Cease the Grease as well as classroom activities to spark an interest in clean water issues.

Nina Blumberg's Water Reuse is Water Wise design won the art contest held as part of the 2007 Earth Action Day organized by Ery Bonatz and the Atlantic Treatment Plant staff to interest the next generation in environmental protection.



HRSD's York River Treatment Plant was the first in North America to implement the sustainable DEMON® Sludge-to-Gas process to achieve energy and chemical savings.

### Regional Collaboration and Research Shape the Future

A focus on collaboration allowed HRSD to unlock new opportunities to benefit the region and the environment. Guided by its commitment to community sustainability, HRSD led an effort in 2014 to regionalize the ultimate solution to sewer system capacity during wet weather. The regional approach, which was supported by the 14 local governments directly connected to the HRSD sewer system, would increase HRSD's costs but was estimated to save the Hampton Roads region more than \$1 billion over the next 20 years.

HRSD's groundbreaking research, leveraged through partnerships with leading universities and other innovative wastewater utilities throughout the world, pivoted in 2015 to address new water resource issues critical to Eastern Virginia's future: diminishing groundwater supplies, land subsidence and the reduction of surface water discharges. HRSD would again lead the way with a bold and creative solution.

South Shore Interceptor System was the largest Operations Department work center when photos were taken for the 75th anniversary time capsule to be opened when HRSD celebrates 100 years of service to the region.



### Living the Legacy

HRSD celebrated the 75th anniversary of its creation with a year-long, multifaceted educational program to engage the public in clean water issues. More than 100 presentations and events for a variety of audiences called attention to HRSD's heritage and involved the public in achieving the 2020 vision:

*Future generations will inherit clean waterways and be able to keep them clean.*



**HRSD History Mural Project Team:**  
 BART MORRIS: Design  
 TONY LILLIS: Narrative  
 HARRINGTON GRAPHICS: Production  
 CHRIS NEWTON: Installation  
 NANCY MUNNKHUSEN: Project Manager