Department of Defense: Naval Station Mayport XL/ENVVEST Project[1]

FINAL PROJECT AGREEMENT SIGNED MAY 30, 2000

Background

The Project Sponsor: The Naval Station Mayport (NS Mayport) is located in Jacksonville, Florida and encompasses more than 3,400 acres on the northern end of a peninsula bounded by the Atlantic Ocean to the east, the St. John's River to the north, and the Intracoastal Waterway to the west. The station is a home port for more than 14,000 sailors and civilians, making it the third largest fleet concentration in the United States, and serves as a base for Navy ships, airplanes, and helicopters, as well as a training and repair station for the Atlantic fleet of the U.S. Navy. NS Mayport has nearly 1 mile of beachfront and 4.5 miles of river shoreline, and almost half of its 3,400 acres are classified as wetlands, brackish marshlands, or beaches. The Navy shares the area with numerous animal species, some being threatened or endangered (e.g., manatees, sea turtles, and northern right whales).

NS Mayport has been designated as the East Coast Navy Environmental Leadership Program base to help lead the Navy by developing innovative technologies and management practices to protect the environment and natural resources.

The Experiment: Every 18 to 24 months, NS Mayport dredges 600,000 cubic yards of silt and sand from the mouth of the channel into the St. Johns River and the facility's turning basin, in order to maintain adequate depths for the passing of naval ships. Historically, the dredged material was stored in two upland holding sites; however, the space in the holding sites was eventually depleted, resulting in the need for another disposal location. Since 1993, ocean disposal for the dredged material has been approved under the Naval Station's current U.S. Army Corps of Engineers (USACE) permits.

The Station is investigating and demonstrating two innovative methods for beneficially reusing dredged material: (1) producing construction building blocks from dredged material and (2) producing artificial reef material from dredged material. Reuse of the dredged material would eventually eliminate the need for ocean disposal of the material and/or permanent upland storage. NS Mayport will also test to see if excess fly ash, a coal combustion byproduct that can be used as a substitute for Portland cement, from the City of Jacksonville's Electric Authority serves as a good solidification material for the construction blocks. By recycling fly ash, the landfill needs of the Electric Authority will be reduced.

This project will proceed in phases that will allow NS Mayport to demonstrate and evaluate that the dredged material finished products are safe to human health and the

[1] EPA and the Department of Defense (DoD) signed a Memorandum of Agreement in 1995 that established how the two agencies would interact during implementation of DoD's Environmental Investment (ENVVEST) program. The ENVVEST program emphasizes regulatory compliance through pollution prevention and provides an alternative to prescriptive regulatory requirements through a performance-based environmental management system designed to attain superior environmental performance.

marine environment. Implementation will include (1) collecting samples of dredged material and ensuring it meets all Federal, state, and local building requirements; (2) researching the cost and benefits analysis to support long-term commercial and/or public use of the new materials; and (3) evaluating the need and cost effectiveness of mobilizing portable equipment to manufacture products at or near the upland storage sites. If it is determined that the finished products present any risk to human health or the marine environment, implementation will stop.

The Flexibility: In return for testing possible beneficial uses for dredged material, EPA, under the XL/ENVVEST process, will create a partnership with the USACE, the Florida Department of Environmental Protection (DEP), the City of Jacksonville, and other interested stakeholders that will facilitate streamlining the permitting process. NS Mayport is currently required to obtain three permits, with three different time lines, to dredge and dispose of its dredged material. The USACE permits require that chemical, biological, and physical analyses on the dredged material be performed and approved by EPA every three years.

EPA, USACE, Florida DEP, and the City of Jacksonville believe that providing NS Mayport with flexibility on permit renewals would allow them to focus more on the issues that stem from dredging and ocean disposal, and less on the paperwork and renewal deadlines. Dredging and disposal are costly processes, but through Project XL, extending the frequency of permit renewals to the maximum extent by law would lower costs and help to improve the environment and marine habitat.

Other Innovations: *(1) Pollution Prevention: Using dredged materials for constructing building blocks and artificial reef materials*. The goal of the NS Mayport project is to minimize and eventually eliminate the ocean disposal of dredged maintenance materials by way of innovative technologies that reuse dredged materials for the creation of construction building blocks and artificial reef material. In addition, NS Mayport has proposed using excess fly ash from Jacksonville's electric authority as a solidification material for the construction blocks (not for reef material). *(2) Federal Budget Process.* ENVVEST is testing new approaches to the federal budgeting process. In the past, DoD's budgeting process allowed resources meant for environmental protection to be used only for meeting legally mandated environmental protection levels. New approaches are being tested to create a budget process that allows DoD to spend resources on pollution prevention programs, innovative technologies, and other approaches that will cost-effectively reduce emissions below legally mandated levels.

The Superior Environmental Performance: The NS Mayport XL/ENVVEST project provides a mechanism for EPA, NS Mayport, USACE, Florida DEP, and City of Jacksonville to explore options for streamlining and synchronizing permit application and processing required for the maintenance of dredging and ocean disposal permits. This reorganization will promote superior environmental outcomes by allowing NS Mayport to focus on developing two innovative methods for beneficially reusing dredged material: (1) producing construction building blocks from dredged material and (2) producing artificial reef material from dredged material. Use of the dredged material would

eventually eliminate the need for ocean disposal of the material and/or permanent upland storage. Reduced ocean disposal of dredging material reduces the potential for negative impacts on water quality and benthic communities. A restriction on reef placement to outside the endangered northern right whale calving areas will eliminate the crossing of vessels carrying dredged materials through this habitat. NS Mayport will also test to see if the excess fly ash from the City of Jacksonville's Electric Authority serves as a good solidification material for the construction blocks. If it is suitable, this will reduce the disposal of fly ash in local landfills.

Progress in Meeting Commitments
(As of October 2001)

NS Mayport committed to identify alternative uses for dredged materials.

- A pilot study to manufacture 1,000 decorative bricks for on-site projects is projected to begin in December 2001.

NS Mayport committed to conduct tests and determine if dredged material and/or fly ash contain any contaminants.

- Preliminary test results from bricks formed from one of the dredged material cells were submitted to EPA on March 2, 2001. Due to solid waste and hazardous waste concerns involving the use of dredged material, EPA and FL DEP requested additional sampling be performed of the dredge material before and after the brick forming process. The contract to perform that sampling was awarded in September 2001 with sampling expected to begin in early December 2001.

- The screening test results indicated that high quality bricks/blocks could be manufactured from NS Mayport dredged material with appropriate additives. The study, conducted by a technical consultant, recommended two possible brick construction techniques out of the dredged material and additives that would produce brick/blocks that meet building specifications and codes for the State of Florida.

- The study also completed Toxicity Characteristic Leachate Procedure (TCLP) testing, required under the Resource Conservation and Recovery Act (RCRA), on specimens of earthen block made with dredged material. EPA has established threshold levels for certain testing parameters, and all samples tested during the TCLP were determined to be less than EPA thresholds. During the duration of the project, EPA must approve data collected prior to any maintenance dredging, currently scheduled for September 2002, 2004 and 2006.

NS Mayport committed to concurrently obtain a Rivers and Harbors Act Section 10 permit for the dredging from the USACE; Environmental Resources Permit (ERP)

from FL DEP; and a Marine Protection Research and Sanctuaries Act Section 103 Permit for the disposal.

- The current NS Mayport Section 10 permit expires in January 2002, the Section 103 permit expires January 2002, and the ERP permit expired October 2001. Permits will be issued concurrently in summer 2002.

NS Mayport committed to obtain from FL DEP a Clean Water Act Section 401 Water Quality Certification (WQC) and a Coastal Zone Management (CZM) certification prior to the issue of a Section 10 permit.

- The certification will be issued once the ERP permit has been obtained. The issuance of an ERP by FL DEP satisfies the WQC and CZM requirements.

NS Mayport committed to issue annual summary reports as outlined in the FPA starting one year following its signing, through June 2009. Each report will be due the same time of each year during the life of the FPA.

- The first annual summary report is scheduled to be submitted by December 30, 2001 in order to include results of additional sampling. Annual reports will be submitted each December through 2009.

NS Mayport committed to begin using dredged material from the two existing inland holding sites for construction blocks and artificial reef materials until one site has been depleted.

- NS Mayport will construct a pilot plant for test production of building block materials beginning in December 2001.

NS Mayport committed to hold public meetings June of each year from 2001 through 2009.

- The first public meeting was held on November 18, 1999. A public meeting will be held in January 2002 following the issuance of the first annual report.

Benefits for the Environment:

Ocean dumping of dredged materials generated by NS Mayport will be minimized and eventually eliminated.

An additional reef ecosystem in the surrounding areas will be created through the use of dredged materials.

Testing the reuse of dredged materials and using fly ash may drastically reduce the amount of waste needing to be landfilled and if successful, may be a potential reuse option for similar dredging operations.

Benefits for Stakeholders:

The City of Jacksonville could benefit financially from the introduction of an artificial reef. Artificial reefs have proven to be effective tools that augment and enhance recreational opportunities (fishing and diving).

The City of Jacksonville's Electric Authority may benefit financially from the use of fly ash in building blocks versus typical disposal costs.

Benefits for the Project Sponsor:

NS Mayport should realize considerable direct cost savings through the synchronization of permits. This project will bring about a significant reduction in paperwork, cost, and time spent on permit renewals. This streamlining will allow NS Mayport to focus on the issues that stem from dredging and ocean disposal.

In setting an environmental management standard for all Navy installations, this project will allow NS Mayport to disseminate its lessons learned from this project throughout the Navy and DoD.

Information Resources: The information sources used to develop this project summary include: (1) the FPA for the NS Mayport XL Project, May 30, 2000; (2) March 2, 2001 report by Norman Murray & Associates to NS Mayport entitled, "*Evaluation of Building Block Manufacture of Dredged Material from U.S. Naval Station Mayport Confined Disposal Facility*"; and (3) the *2000 Project XL Comprehensive Report Volume 2: Directory of Project Experiments and Results*, November 2000.