

N60201.AR.000292
NS MAYPORT
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NEWSPAPER ARTICLE "MAYPORT NS TEST SITE FOR ENVIRONMENTAL CLEANUP
TECHNOLOGY" NS MAYPORT FL
1/17/1996
THE BEACHES LEADER

Mayport NS test site for environmental cleanup technology

by IRENE SMITH
STAFF WRITER

Microscopic bacteria and soil nutrients are part of the new environmental cleanup technologies that are being tested over the next six months at Mayport Naval Station.

Mayport is one of two naval sites in the county that are being used as environmental test sites for new technology to expedite compliance and cleanup activities for the Navy Environmental Leadership Program (NELP), an environmental management program that will create a blueprint for future environmentally safe naval installations.

The use of innovative technologies is being tested at four sites at the naval station. Three sites are identified for cleanup of past hazardous waste and one site is being used for pollution prevention. These four projects involve a commitment of more than \$850,000. Depending on the success of the innovative technology, the techniques will be exported throughout the Navy for future environmental cleanups.

"Mayport is a relatively clean base considering the amount of past and present industrial activity, which includes a fuel farm, shipyards, Shore Intermediate Maintenance Activity and the Aircraft Intermediate Maintenance Department, said Cheryl Mitchell, environmental engineer and the installation restoration program manager at Mayport. Mitchell's job is to ensure that the naval station is in compliance with the permit that governs investigation and cleanup of contaminated sites.

Two of the sites involve treatment of a waste oil pit and oily waste treatment plant sludge drying beds, located north of the runways near the St. Johns River. The two sites were grouped together for treatment because they share a similar location and contamination. Removal of contaminated water and oily wastes is currently being performed as part of the scheduled

of these substances to the St. Johns River and surrounding area, Mitchell said.

One of the sites is the waste oil pit that was constructed in 1973 and was about 0.2 acres in size and 6 feet deep. Bilge water, solvents, and transformer oils were disposed at the site until 1978. In 1979, the waste oil pit was covered.

The oily waste treatment plant sludge drying bed was constructed in the same location and operated from 1979 to early 1994. Results of investigations indicate that soil and water from the sites appear to contain oily wastes. Mitchell said that a technology called low temperature thermal desorption will be used to clean the soil. The process consists of "baking" the contaminated soil until the petroleum substances evaporate and then are burned in the machine. The cleaned soil is then tested and returned to the site. "Up to 500 tons of soil a day can be treated," Mitchell said.

Another new technology uses ultraviolet light and ozone to treat bilge water contaminated with oily wastes instead of chemicals.

One site will use "microbial bioremediation" that uses certain microbes to digest hydrocarbons. "These friendly bacteria break down the contaminants into harmless particles," Mitchell said. "These will be used to treat the contaminated concrete surface and contaminated soils at the site."

At the old pesticide handling area, "Bac-terra remediation" is an on-site remediation which works by enhancing the soil with nutrients, a process known as "bioaugmentation." "The nutrients provide an additional food source for the friendly bacteria to eat, along with the pesticides they consume," said Mitchell. "The nutrients are distributed into the soil through a sprinkler/soaker system, and the contaminants are destroyed into harmless particles," Mitchell said.

"All four of the new technologies look promising and will help clean up some of the sites quicker than previously planned," Mitchell said. "It's exciting to see