

The EBERA also needed to be available to multiple agencies from the federal to the local level as well as to the public, so free software was used. The information was installed on a self-launching disk so that it would not have to be installed on individual computers. Gone are the days of flipping back and forth to indexes, appendixes, and figures. The new EBERA puts all the information that an RPM needs just a click away.

Naval Station Norfolk – Closeout and Exit Strategy

Optimization and expansion of the Air Sparge (AS) and Soil Vapor Extraction (SVE) system has resulted in the accelerated cleanup of chlorinated solvents in groundwater at Naval Station Norfolk (NSN). Site 3, the Q-Area Drum Storage Area, was an open earthen yard that was used in the 1950s to store tens of thousands of drums containing organic chemicals. The remedial measures implemented at Q-Area consist of two separate AS/SVE systems to treat two distinct plumes of volatile organic compound (VOC) concentrations.

The AS/SVE systems successfully decreased most VOC concentrations at the site, so the NSN partnering team agreed to a proposed closeout strategy for one area of the site. The closeout strategy included the accelerated remediation next to a hotspot to reduce the remaining high concentrations of VOCs. The accelerated remediation was to be accomplished by extending the treatment system and installing a new AS well. Currently, the team is conducting the final step in the closeout strategy, which includes collecting four additional rounds of groundwater monitoring

to determine if the concentrations have stabilized or remain below the cleanup goals. The work at Site 3 has demonstrated that an early closeout and exit strategy discussion with the partnering team is essential to reaching the goal of cleanup expeditiously.



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Naval Weapons Station Yorktown – Remedial Actions and Natural Resource Restoration

The Navy completed a remedial action for Site 4 at Naval Weapons Station Yorktown. The remedial action for this site addressed a variety of soil contaminants resulting from open burning and disposal activities that took place over many years. More than 57,000 tons of contaminated soil and debris were removed from the site and disposed in regulated landfills. One of the primary focuses of the remedial action was to enhance natural resources in the area. Throughout the restoration process at the site, the U.S. Fish and Wildlife Service and Navy natural resource personnel participated in the selection of plants, including wetland and upland species. As part of the restoration at Site 4, a wetlands and pond were created, introducing a habitat for wildlife. In addition to the enhancement of natural resources, land use controls became unnecessary at Site 4 after the remedial action was completed.



Naval Weapons Station Yorktown – Amphibian Pond at Site 4

Navy/Marine Corps Environmental Restoration Success Stories for 2006 in Virginia



The Navy (including Naval Facilities Engineering Command [NAVFAC], Mid-Atlantic and NAVFAC Washington), the Marine Corps, the Virginia Department of Environmental Quality (VDEQ) and Region III of the U.S. Environmental Protection Agency (EPA) have continued to successfully execute the Virginia-Navy Environmental Restoration (ER) Program in 2006. The collaborative decision making among the agencies solves difficult technical and policy issues so that they can achieve the collective goal of cleaning up military installations with significant savings of both time and money. This summary highlights some of the ER successes at the Navy and Marine Corps bases in Virginia during 2006.

Naval Support Facility, Dahlgren – ROD Amendment and Remedial Action at Site 37

Site 37 is a lead contamination area along the shoreline of a creek at Naval Support Facility, Dahlgren. A Record of Decision (ROD) was signed in 2004 that included surface soil removal and offsite disposal. However, because the soil removal may have encountered firing range projectiles, the project was facing unanticipated schedule and cost growth to handle the unexploded ordnance (UXO). The explosive safety areas that would have been required during a removal action would have significantly affected base operations (housing, school, R&D, navigable waterways). Therefore, a new alternative consisting of a soil cover, shoreline stabilization, institutional controls, and long-term monitoring was proposed by the partnering team. This remedy would require only limited excavation activities, such as small drainage channels, minor grading, and surficial UXO clearance for construction laydown areas. It would also minimize the explosive-safety-arc setback of the surrounding area.

EPA Region III and VDEQ agreed with the Navy's position of amending the ROD with this new alternative and agreed to champion the change through their respective agencies. The Navy issued a Proposed Plan and presented it in a public meeting in December 2005. The amended ROD was signed in August 2006; the design and construction work plans were revised; and construction began in 2006. A ROD amendment typically would have taken much longer to get through the regulatory process without the cooperation of the partnering team.

Marine Corps Base Quantico – Removal Actions at Eight Sites

Over the past 2 years, the Quantico team has successfully implemented removal actions at eight sites on Marine Corps Base Quantico. With the completion of the last of these – Site 9, Camp Goettege Disposal Area – the team has conducted the last terrestrial cleanup at the facility.

Communication and coordination with base personnel were key to successful cleanup of these sites. During the Site 98 removal action, scheduling and logistics permitted the Medal of Honor Golf Course to continue uninterrupted operations, even with a removal activity occurring just out of bounds of the fairway. Vehicular and foot traffic control and coordination were crucial during the Site 32 removal action because this site is located in a heavily trafficked area of the Base. The Navy received a special commendation from The Base School for effective communication with Base Explosive Ordnance Disposal through weekly updates and progress meetings during the Site 8 removal action.

The removal actions have resulted in various enhancements at the Base. Site restoration activities have provided improvements to landing zones, roadways, training areas, and other mission-essential training. These improvements were necessary to allow the heavy truck traffic and other construction equipment to gain access to these areas, and leaving these improvements in place adds to the mission of the facility by enhancing access and improving aesthetics.



Quantico – Soil screening at Site 8

During removal actions, a soil sifter was used at Sites 8, 21, and 9 to minimize the amount of clean soil that was sent to a landfill. A significant reduction in waste volume (from 20,000 tons to 3,600 tons) was achieved for removal actions at Sites 8 and 21. This approach resulted in cost savings of approximately \$900,000 for waste hauling and disposal. Recycling saved an additional \$18,000 when buried scrap metal was removed and sent to a recycling facility instead of a landfill. In addition, the timber harvesting conducted at Site 9 avoided the cost to the program for tree removal and provided the facility with revenue from sales of the timber.

Norfolk Naval Shipyard – Risk Management

At the Norfolk Naval Shipyard (NNSY), risk management was appropriately used to bring closure to two sites. Site 10 Disposal Area was reportedly a fill and dredge disposal area to reclaim land; there is no specific information available on wastes disposed. Site 17, the Plating Shop and surrounding area, was the principal plating shop at the NNSY. Sites 10 and 17 have been investigated in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process to evaluate the risk to human health and ecological receptors from metals. Because the industrial nature of the sites means there are little to no areas of vegetation, there is no viable ecological habitat. Therefore, the risk to ecological receptors was only qualitatively evaluated.

The risk characterization initially indicated potential risk for human health associated with exposure to metals in soil and groundwater. Anticipating likely future industrial use, the team determined that Land Use Controls restricting residential development was appropriate for managing potential soil-related risks at these sites. Statistical analyses were conducted between groundwater monitoring events in 2001 and 2004, and between upgradient, site, and downgradient monitoring wells. These findings showed that there was no statistical correlation indicating that a release had occurred, and there was no discernible plume of metal contamination at the sites. Other metals in groundwater were in isolated locations and individually posed no unacceptable risk. A risk management decision was made that no further action was needed for groundwater.

At Site 17, a risk management decision was also made, considering multiple lines of evidence, that human health risks were acceptable. The lines of evidence used to support the risk management decision were:

- Current and reasonably anticipated future land use
- Type of contamination (metals found naturally in coastal plain setting)
- Statistical evaluation of site data relative to a contaminant source



Naval Amphibious Base Little Creek – View of new plantings from Picnic Platform – September 2006

Naval Amphibious Base Little Creek – Former Demolition Debris Landfill

Site 8, the Former Demolition Debris Landfill, consisted of approximately 1.2 acres in the south-central portion of Naval Amphibious Base Little Creek. Primarily inert materials were disposed in the Former Demolition Debris Landfill, which operated from 1971 to 1979. The Navy, in partnership with EPA and VDEQ, agreed that removal of the landfill waste and construction of a wetland habitat would mitigate the potential human health risk and further reduce the low potential ecological risk. In 2005 and 2006, approximately 30,000 tons of landfill debris were excavated and transported offsite for disposal as non-hazardous waste.

In 2006, following removal of the landfill debris, clean sand backfill was imported to the site and graded to the elevations established during the wetlands benchmark survey to match existing wetlands adjacent to the site. The constructed wetlands included a perimeter ditch that is constantly flooded and three “mud flat” areas. The wetlands planting consisted of approximately 14,500

plants. Reflecting the team’s partnering relationship, EPA and VDEQ agreed to the Navy’s proposal of a No Further Response Action Planned following the waste removal, judging that any remaining low-level risk would be outweighed by the overall positive benefits from the natural wetland habitat created. This decision helped save time and money by eliminating the need to perform additional studies and long-term monitoring.

St. Juliens Creek Annex – Electronically Enhanced Baseline Ecological Risk Assessment

The purpose of a Baseline Ecological Risk Assessment (BERA) is to evaluate the potential ecological risks at a site. The typical BERA can be hundreds of pages long and redundant, with dozens of figures sometimes referencing back to hundreds of pages of analytical data. Trying to get the information for a particular receptor or chemical requires time and patience to navigate through the pages of data.

The St. Juliens Creek Annex Partnering Team decided to develop an electronically enhanced BERA (EBERA) for Blows Creek. The goal of the EBERA is to create a CD-based interactive format that allows the Remedial Project Manager (RPM) and technical support staff to compile and view the data more easily. One example of the innovations in the EBERA is the sediment screening value tool. This tool allows RPMs to see a range of results for one analyte across a site in a color-coded format. The mouse can be moved over each sample point to find out the exact concentration detected and sample ID number.



St. Juliens Creek Annex – Example of EBERA sediment screening value interactive tool for Lead