

# Accelerating Cleanup

*Accelerating cleanup will better protect human health and the environment and reduce cleanup costs.*

A fundamental element of DoD's environmental restoration program is the consistent effort to accelerate the cleanup process. Over the years, DoD has developed many initiatives to compress project schedules and conduct cleanups more cost-effectively. Many of these initiatives were brought to the forefront of environmental restoration with the implementation of the Fast-Track Cleanup Program.

To accelerate the cleanup process, DoD continues to implement initiatives such as interim actions, innovative site management strategies, and flexible contracting mechanisms.

"Common sense approach" and "good business practice" are phrases increasingly used to describe the daily business of environmental restoration at installations throughout DoD. With the evolution of the program, DoD has enhanced its ability to develop strong partnerships, involve the community and respond to their concerns, and apply and adapt new and existing technologies. These central themes play a major role in every successful cleanup effort.

*Partnerships, community involvement, and environmental technology are integral to the pursuit of accelerated cleanup.*

The following stories illustrate DoD's reliance on partnerships, community involvement, and environmental technology that together work to accelerate environmental restoration at installations.

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## **Rational National Standards Initiative**

The Air Force developed a risk management tool, the Rational National Standards Initiative (RNSI) as a means of establishing cleanup standards based on risk and future land use. This proactive approach to cleanup builds consensus among all stakeholders by identifying land reuse options and establishing risk-based cleanup standards for those options. The RNSI is based on the fact that human exposure to soil and groundwater contamination is typically greater in a residential setting than in a commercial, industrial, or open-space setting. Therefore, cleanup levels for contaminated sites whose future land uses are open-space, commercial, and industrial would be less restrictive than regulatory cleanup standards currently being applied at Air Force sites.

RNSI was prototyped at Shaw Air Force Base in South Carolina and Ellsworth Air Force Base in South Dakota. Results show that cleanup levels required to achieve the same

level of protection vary with future land use. Significant cost and time savings also resulted as a benefit of this initiative.

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## **Achieving Better Results, The Navy Refines Data Collection**

Using new tools and methods, such as geostatistics, the Navy is placing more emphasis on effective planning in the study phases of the restoration process. The Naval Air Station in Jacksonville, Florida has used geostatistics to avoid approximately \$4 million in additional environmental study costs.

Geostatistics is a tool that has been introduced recently to map contamination at a site more efficiently. Because the study phases of environmental restoration provide an opportunity to reduce expenses, EPA encouraged the use of geostatistics to provide a logical framework for the sampling and analysis of environmental data.

The use of geostatistics serves as a decision-aid and planning tool to significantly reduce short-term site assessment costs, and long-term sampling and monitoring needs. In addition, using geostatistics can lead to more accurate and realistic design criteria.

Environmental studies are often based on speculation regarding the location of contamination. However, contaminant concentrations across a site typically exhibit wide variations because of complex site characteristics. Uncertainties inherent in investigating subsurface contamination frequently lead to excessive sample collection efforts and the generation of redundant information. In some cases, sampling costs exceed the value of the collected data.

The Naval Air Station in Jacksonville, Florida, used geostatistics to evaluate existing data. Statistical analyses indicated that groundwater contamination at the installation had been adequately delineated. The analysis also confirmed the location of several "hot spots." The improved knowledge of the nature and extent of contamination has provided a focus for future sampling and has expedited cleanup.

*EPA has taken the lead in promoting the use of geostatistics for environmental investigations. It also produced the first geostatistical public-domain software packages known as Geo-EAS (Geostatistical Environmental Assessment Software, EPA/600/4-88/033a, 1988) and GEOPAK (EPA/600/8-90/004, 1990).*

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## **First Base-Wide ROD, Riverbank Army Ammunition Plant, California**

Riverbank Army Ammunition Plant (AAP) in California became the first DoD installation to establish a base-wide Record of Decision.

Typically, DoD installations implement multiple Records of Decision to address environmental restoration activities at various sites. While in the planning stages of the study process, the Army planned to issue a single Record of Decision for the installation, thereby avoiding multiple Record of Decision procedures.

This study approach enabled Riverbank AAP to use resources and review time more efficiently. For example, on the average, remedial investigation and feasibility study activities range from 40 to 45 percent of the total annual restoration cost. The installation successfully kept study costs down, with studies accounting for only 35 percent of total costs in FY94.

Once the base-wide Record of Decision was authorized, the funding and the cleanup method were approved more quickly, enabling the entire installation to move forward on a single cleanup schedule.

The groundwater extraction and treatment system as dictated by the base-wide Record of Decision was designed to augment an existing interim groundwater treatment system installed in 1990. This inclusive design, illustrated above, took advantage of past investments in groundwater remediation, thereby saving additional costs.

## **The Riverbank News**

### **Ammo Plant Cleared for Cleanup**

**WEDNESDAY, MARCH 30, 1994**

Department of Defense spokesman Rick Newsome remarked, "This is a great day for the environment, it's a great day for the Army and I think it's a great day for Riverbank. The first installation in the Army for a site-wide Record of Decision is indeed a momentous occasion."

"I'd like to express my congratulations to the installation, to the community, to the state and EPA for working as a team to determine what needs to be done to protect human health and the environment here in Riverbank," he said. "We are very happy to see this day come and I want you to remember it as an accomplishment of what can be done when you work together as a team."

*Riverbank Army Ammunition Plant became the first DoD installation to accelerate cleanup and reduce costs by establishing a base-wide cleanup Record of Decision.*

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## **Ball Field Remediation Former Raritan Arsenal, New Jersey**



***The U.S. Army Corps of Engineers excavates contaminated soil from the baseball field at the former Raritan Arsenal.***

The Middlesex County College baseball team has its home field back thanks to the focused cleanup effort of the U.S. Army Corps of Engineers, college officials, and Federal and state regulatory agencies, who all worked together to successfully complete a 5-year project in only 20 months.

The baseball field was originally constructed where the former Raritan Arsenal conducted open pit burning operations. A 1991 preliminary remedial investigation uncovered high levels of lead in the soils under the baseball field. After the field was closed for 2 years, the New Jersey Sports Authority announced in August 1993 that Middlesex County College would qualify to receive a grant worth about \$900,000 to replace the baseball field and improve adjacent athletic facilities if they could meet two criteria: (1) clean up the contaminated area before improvements are made and (2) expend the funds by the end of 1995.

Together representatives of the college, the New Jersey Department of Environmental Protection, EPA, the U.S. Army Corps of Engineers (New York District), and the U.S. Army Corps of Engineers (New England Division) developed a strategy for completing the remedial investigation and remedial actions in time for the college to use the grant funds.

The U.S. Army Corps of Engineers completed its remedial investigation, developed a remedial action work plan, and awarded the remedial action contract in 11 months.

Cleanup activities began in September 1994. Approximately 17,500 cubic yards of contaminated soil and debris were excavated from the baseball field area in 8 months. The college was able to contract the construction of its new athletic facilities in June 1995.

The project team, the college, state and Federal regulatory agencies and the U.S. Army Corps of Engineers met regularly throughout the course of the restoration process. The effective coordination among the involved parties enabled the U.S. Army Corps of Engineers to proceed concurrently on multiple project phases. For example, detailed design started before the remedial action plan had been finalized and formally approved. When potential barriers cropped up, reports were immediately provided to state and Federal regulatory agency personnel so that appropriate actions could be taken quickly and with concurrence from all parties. Open lines of communication and the full cooperation of all parties made it possible to accelerate this project's schedule and to complete it successfully.

*Innovative project management and coordination were instrumental in compressing*

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## **Restoration and the Distribution Mission at DDRW Sharpe, California**

Environmental staff at Defense Distribution Region West (DDRW) Sharpe continue to work with Defense Logistics Agency (DLA) planners and regulatory agencies to achieve the highest standards of environmental protection while maintaining the installation's storage and distribution mission. Efforts at DDRW Sharpe have allowed the sequence and progress of environmental restoration to coincide with the installation's growing demand for warehouse and open storage space.

DDRW Sharpe's environmental staff have worked diligently with DLA planners and regulatory agencies to ensure that selected cleanup actions do not conflict with mission requirements. For example, the locations of percolation ponds and injection wells needed to clean up groundwater, shown in the graphic, were determined after carefully considering the location of two general purpose warehouses planned for construction in FY96-97. In another example, a proposed hazardous material storage building will be constructed in FY97-98, following the demolition of a closed RCRA storage facility. Other actions at the installation such as soil cleanup will be prioritized to make those areas available for new construction.

The DLA mission relies on a national network of distribution and maintenance installations. Mission-related activities, such as vehicle repair and underground tank storage of hazardous substances, have resulted in environmental contamination at sites across DDRW Sharpe. Soil and groundwater cleanup actions are currently under way at numerous underground storage tank locations and other contaminated sites.

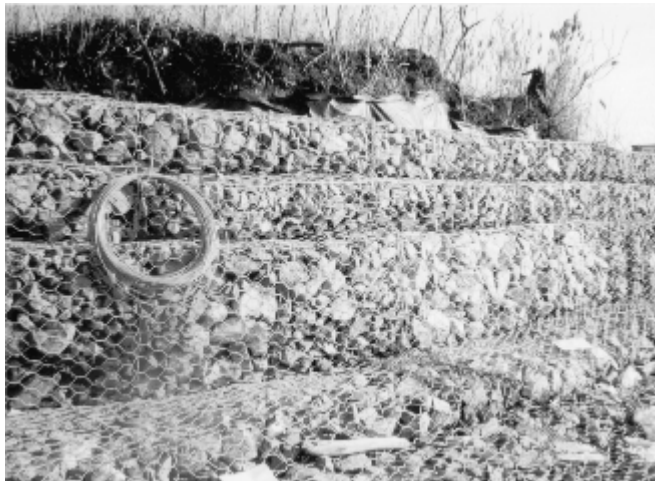
The Base Realignment and Closure Commission recently decided to consolidate closed and realigned activities from other installations at DDRW Sharpe, which threatened to bring mission needs into conflict with restoration requirements. In response to the increased demand for space at DDRW Sharpe, activities such as construction and scheduling of restoration efforts have received much greater priority than in the past.

Through the cooperative efforts of DDRW Sharpe's environmental staff, DLA planners, and regulatory agencies, environmental restoration is being achieved without hindering any of the construction and renovation projects needed to support the installation's expanding storage and distribution mission.

*DoD worked closely with regulatory agencies at DDRW Sharpe to resolve potential conflicts between mission and cleanup requirements.*

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## **Taking Action at the Philadelphia Naval Shipyard**



***Gabion baskets were installed by the Navy along the Schuylkill River to stabilize the Girard Point Landfill at Philadelphia Naval Shipyard.***

At the Philadelphia Naval Shipyard, the Navy took immediate action to address an unstable landfill with hazardous contents exposed on the bank of the highly traveled Schuylkill River in Philadelphia, Pennsylvania. If not for the actions taken by the Navy between November 1994 and April 1995, a dangerous release of contaminants could have occurred to the Schuylkill River, which empties into the Delaware River.

From the early 1940s to 1970, the Girard Point Landfill at the Philadelphia Naval Shipyard was used as a disposal facility for municipal waste, industrial waste, and

incinerator ash. The landfill lies along the Schuylkill River near the confluence of the Schuylkill and Delaware Rivers. Because of strong wave action, the landfill cover was eroding and exposing its contents.

A cross-section of the landfill showed that it contained ash, asbestos, construction debris, electrical cable, and pieces of metal. Stabilizing the river bank without disturbing the large pieces of construction debris would be difficult. Three alternatives were considered: sheet piling, seawall construction, and gabion basket placement with rock armor. The use of sheet piling was ruled out because it relied too heavily on the surrounding sediment for support. Constructing a seawall was not a feasible option, because the seawall would have to reach to bedrock deep below the surface, involving costly procedures. The alternative chosen involved a combination of gabion baskets and rock armor.

Gabion baskets are constructed of metal netting or links that form a basket; the basket is used to hold rocks together to prevent them from shifting or falling. The stabilization action was begun by first removing large debris from the landfill. The gabion baskets were installed along the tidal flat to provide a stable work area. Areas of the landfill were then smoothed out with aggregate fill, and geotextile material was then layered over the fill. Rock armor was then used to complete the stabilization.

The project was completed in just five months, and the landfill and associated river bank are now stabilized and structurally sound. The Navy estimates that the selected stabilization method was at least five times less expensive than other alternatives, and that it has resulted in a safe, long-term solution to stabilization of the river bank. In addition, the gabion basket design can be incorporated into the final remedial design for the landfill cap. Because it was effective, this stabilization technique will be used to stabilize other sections of the river bank during the final landfill remediation.

*The project was completed in just five months, and the landfill and associated river bank are now stabilized and structurally sound.*