

**PERFORMANCE-BASED CONTRACTING: BRIDGING THE GAP BETWEEN  
PRIVATE SECTOR AND FEDERAL CLEANUP PROGRAMS**

J. Kim  
U.S. Army Environmental Center  
Aberdeen Proving Ground, MD

J. Gilman  
CALIBRE  
Alexandria, VA

**ABSTRACT**

The Army, like most federal and state environmental organizations, is faced with limited resources to conduct environmental work, an increasing workload, and challenges in achieving closeout of its environmental cleanup programs. In response, and in an effort to incorporate proven private sector tools into federal cleanup programs, the Department of Defense (DoD) Business Initiative Council (BIC), initiated the use of Performance-Based Contracting (PBC) for environmental cleanup. The purposes of the initiative are to help DoD installations cap the cost of, and lock in the schedules for, remediation activities at their sites, and to identify ways to “incentivize” contractors to achieve regulatory closure at sites on schedule, while maintaining continued safety and protection of human health and the environment. This BIC initiative is being implemented in the Army by the U.S. Army Environmental Center (USAEC).

Since fiscal year 2000, the Army has successfully awarded and is currently executing more than 30 performance-based contracts for environmental remediation. The contracts range from \$700,000 to \$52.4 million, and include both Base Realignment and Closure (BRAC) properties as well as some of the Army’s most complex active installations. The Army employs several types of PBCs, including both firm-fixed price and guaranteed fixed price contracts, and in one case has included incentives for accelerated performance. Contract scopes address a range of activities including investigation through monitoring and site completion, as well as a range of technical challenges including dense non-aqueous phase liquids (DNAPL) in ground water, karst systems, munitions and explosives of concern, and biological agents. Contracts have been awarded in 24 states, and all 10 EPA Regions. Early results from contracts in place show progress being made at or ahead of schedule, with positive feedback from installations, regulators, and the public. Through this effort, the Army also estimates that in FY03 and FY04 it achieved approximately 17 percent cost avoidance when comparing contract award values to the independent government estimates.

**INTRODUCTION**

The Army, like most federal and state environmental organizations, is faced with limited resources to conduct environmental work, an increasing workload, and challenges in achieving closeout of its environmental cleanup programs. In response, and in an effort to incorporate proven private sector tools into federal cleanup programs, the Department of Defense (DoD)

Business Initiative Council (BIC), initiated the use of Performance-Based Contracting (PBC) for environmental cleanup. The purposes of the initiative are to help DoD installations cap the cost of, and lock in the schedules for, remediation activities at their sites, and to identify ways to “incentivize” contractors to achieve regulatory closure at sites, while maintaining continued safety and protection of human health and the environment. This BIC initiative is being implemented in the Army by the U.S. Army Environmental Center (USAEC).

### **Overview of the Army PCB Program**

In 2000, the Army first piloted Guaranteed Fixed Price Remediation (GFPR) contracts at Base Realignment and Closure (BRAC) and active installations. GFPR is a type of PBC that has been used in private sector cleanups for a number of years, particularly in the area of Brownfields redevelopment. GFPR contracts use environmental insurance (“the guarantee”) to provide backup funds to the Army should the remediation not go as planned. Since that time, the Army has embraced the PBC approach and has been working to establish a program to implement the use of PBC at many of its installations.

To qualify as a PBC in the Army program, a contract mechanism must:

- Contract for “What,” not “How”
- Clearly define objectives, milestones, and standards
- Use incentives or environmental insurance to enhance performance
- Promote flexibility in exchange for accountability for results
- Use fixed price contracts

The Army now uses several types of performance-based contracts, including both firm-fixed price and guaranteed fixed price contracts, as well as fixed price contracts with incentives. The goal is for the contractor to achieve one or more of the following objectives for each site identified in the Performance Work Statement (PWS): 1) remedy in place with a successful 5-year review; 2) response complete; or 3) long-term monitoring with a successful 5-year review. For BRAC installations, objectives may also include achieving an Operating Properly and Successfully (OPS) certification and preparing the property for transfer.

Each candidate installation is carefully reviewed to determine if PBC is an appropriate component of the installation’s restoration plan. If so, the Army PBC Team identifies the scope of effort that will be included in the contract and the contract type that best matches the activities necessary to achieve performance objectives. The evaluation is usually conducted with the regulatory participation to gain early feedback and buy-in from the regulatory community. Additionally, the Army frequently presents a PBC briefing to the public to discuss the Army’s PBC initiative, and to identify community concerns regarding the new potential contract mechanism.

The scope of activities ranges from investigation through monitoring and site completion. Scopes frequently address a wide variety of technical challenges including dense non-aqueous phase liquids (DNAPL) in ground water, karst systems, munitions and explosives of concern, and biological agents. For example, a performance objective for one of the FY03 PBC sites is to

achieve Army and regulatory approval of Remedy in Place (RIP) on a groundwater plume contaminated with 5 million gallons of DNAPL in fractured bedrock. An FY04 award includes a performance objective for achieving Army and regulator approval of RIP for a suite of disposal sites with known biological hazards. Both situations were deemed to have sufficient uncertainty and risk to the contractor that environmental insurance was required. Although technically challenging, both contracts were awarded at a price that was less than the Independent Government Estimates (IGEs). Furthermore, both sites now have set schedules to achieve completion, and the Army has a cap on the costs that will be required to fund remediation activities.

### Results from the PCB Army Program

Since fiscal year 2000, the Army has successfully awarded and is currently executing more than 30 performance-based contracts for environmental remediation, representing over \$300 million in contract capacity. The contracts range from \$700,000 to \$52.4 million, and include both Base Realignment and Closure (BRAC) properties and some of the Army's most environmentally complex active installations. In FY04, 36 percent of the Army's Installation Restoration Program was performance based, representing approximately \$140 million. As shown in Table I, to date, contracts have been let in 24 states and all 10 EPA Regions. <sup>a, b</sup>

**Table I. Army Performance-Based Contracts Awarded Since Fiscal Year (FY) 2000**

FY	Installation	Program	State	Region
FY00	Rio Vista	BRAC	CA	9
FY00	Camp Pedricktown	BRAC	NJ	2
FY01	Lompoc Disciplinary Barracks	BRAC	CA	9
FY01	Fort Gordon	Active	GA	4
FY01	Fort Sheridan	BRAC	IL	5
FY01	Fort Devans AOC 50	BRAC	MA	1
FY01	Hingham Annex	BRAC	MA	1
FY02	Fort Leavenworth	Active	KS	5
FY02	Fort Pickett	BRAC	VA	3
FY03	Fort Ord (OU1)	BRAC	CA	9
FY03	Sierra Army Depot	Active	CA	9
FY03	Lake City Army Ammunition Plant	Active	MO	7
FY03	Fort Dix	Active	NJ	2
FY03	Ravenna Army Ammunition Plant	Active	OH	5
FY03	Fort Jackson	Active	SC	4
FY03	Camp Bonneville	BRAC	WA	10
FY04	Fort Rucker	Active	AL	4
FY04	Riverbank Army Ammunition Plant	Active	CA	9
FY04	Fort Irwin	Active	CA	9
FY04	Hunter Army Air Field	Active	GA	4
FY04	Iowa AAP	Active	IA	7
FY04	Rock Island Arsenal	Active	IL	5
FY04	Louisiana Army Ammunition Plant	Active	LA	6
FY04	Aberdeen Proving Ground - Graces Quarters	Active	MD	3
FY04	Aberdeen Proving Ground - Other Aberdeen Sites	Active	MD	3

FY	Installation	Program	State	Region
FY04	Fort Detrick	Active	MD	3
FY04	Army Reserves Sites	Active	Multi	Multi
FY04	Milan Army Ammunition Plant	Active	TN	4
FY05	Hawaii (3 Installations)	Active	HI	9
FY04	Holston Army Ammunition Plant	Active	TN	4
FY05	Camp Navajo	Active	AZ	9

### **The Installation Perspective**

From the beginning of this initiative, there has been concern expressed on the part of installation personnel as to their roles and responsibilities with PBC. There was a fear that they would lose control of the ongoing installation cleanup program and that the installation would no longer direct the contractor to take action. Now that installation personnel have experience with the performance-based contracts, there are very different impressions. Installation personnel are finding that although their work load has not decreased (and in some cases has increased), the type of work they are doing has changed dramatically. They are focusing more on review of technical documentation than on issuing contract modifications or worrying about keeping work moving in light of funding limitations. They now find themselves in the position of facilitating remediation progress and they remain the voice of the Army in terms of public and regulator interaction. The contractors do not represent the Army in any public forum, nor do they negotiate with regulators on behalf of the Army.

Early results from contracts in place show progress being made at or ahead of schedule, with positive feedback from installations, regulators, and the public. Installation personnel report that schedules for activities are being accelerated, e.g., the amount of time required to reach an approved work plan is significantly less than prior to implementing PBC. Overall, communication between all parties is a higher priority than in past years. Personnel at several installations noted that the non-prescriptive nature of the contracts has allowed contractors greater flexibility to conduct operations and planning on a number of sites simultaneously. When work slows at one site, the contractor can shift attention to another site. For example, at one installation there was a requirement for the state historic preservation office (SHPO) to review a document before work could proceed at a site. Work stopped at that site while the document was in review. In response, the PBC contractor shifted personnel and equipment to another site, keeping work moving forward while waiting for SHPO approval. Another contractor was able to take clean soil from a ditch, redirect activity, and use it for clean fill on a landfill, saving the Army the considerable cost of obtaining off-site materials. Careful contractor planning and flexibility have reduced overall mobilization/demobilization costs across an installation. Having a single contractor work multiple projects has resulted in reduction of overall management costs in terms of documentation. For example, once a contractor has developed an approved work plan, health and safety plan, or other required document for one site, it is much less expensive to revise that plan for the next site. In addition, opportunities can be identified to combine sites in documents, e.g., developing a single No Further Action (NFA) Record of Decision (ROD) for multiple sites across an installation, or developing a generic (so called "plug and play") feasibility study and ROD that can be applied to multiple similar sites. All of these opportunities have existed at private sites and Army facilities in the past; however, historical contracting structures at Army sites often did not allow the flexibility necessary to

implement cost saving measures. In many cases there was little or no incentive for the contractors to do so. The PBC approach has provided both flexibility and incentive.

### **Regulator Perspective**

There have been mixed reactions from the regulatory community and the public regarding PBC. Specifically, regulators have expressed concern that the Army is walking away from its liability and letting contractors take charge of the remediation. While this is not the case, there can be a significant challenge in overcoming this perception. Once regulators see that the Army remains the point of contact and the key overseer of contractor activities, this concern has been significantly reduced and/or eliminated. Other regulators state the very real concern regarding their ability to keep up with the contractors if they are accelerating the remediation program at installations. At one active installation this resulted in the contractors, Army, and regulators negotiating a schedule by which the contractors would send one primary document a month to the regulators for review. With this schedule, the contractors could work to allocate activities across multiple sites, and the regulators knew when their resources would be required. At a BRAC installation, the state regulator has requested a yearly projection of resource requirements for the PBC activities. This will be developed by the contractor, in conjunction with the Army, and be submitted by the Army to the state for planning purposes.

Regulators overseeing performance-based contracts are also expressing approval of the process and the concept. In one state, the regulators have been pleased to deal with a single contractor (before the PBC they had numerous contractors working on different sites across and installation) because they now have a single, consistent approach to documents, facilitating ease of regulatory review. The Army includes the regulators in early discussions on the scope of work for each site to be included in the performance-based contract. According to one EPA regulator, EPA input during the process [of developing the PWS] can be seen in at least 25 percent of the final contract. Some pieces of the original draft did not reflect where EPA saw the status of the site as far as site closure but, in the end, the scope adequately addressed EPA's concerns for getting the sites to completion.

### **Observations and Challenges from the First Four Years**

While senior Army leadership sees the program as a success, it has not been without its challenges. Regulators, communities, industry, and installation personnel have raised concerns about implementation and the extent to which the federal agencies remain involved in the cleanup actions. This is due in part to misconceptions about PBC and confusion with on-going DoD privatization efforts. In addition, as with every new effort, some contracts have proven more difficult than others both in terms of getting the contracts awarded and implementing the contracts once in place. Observations noted by USAEC and the Army installation personnel include the following:

- *Project planning needs to be a team effort.* A key element of the PBC process is frequent and early communication on all aspects of the projects so there are no surprises either on the part of the Army or regulators when a document is received, or on the part of the contractor when their path forward does not meet the Army or regulator expectations. Personnel

involved with implementing performance-based contracts state that there is an increase in the time required for meetings and planning early on in the contract; however, this is reduced as the team becomes more efficient and expectations for all parties are clearly understood.

- *Clearly defined endpoints and objectives are required.* Although PBC is designed to provide flexibility to the contractors, it is necessary for the Army to be very clear on the performance objectives. This includes a definition of “regulatory closure,” clearly delineated sites, and a clear definition of when each performance objective has been met (i.e., can a contractor be paid when they have received “tentative approval” of a milestone document from the regulators?). The initial performance based contracts allowed flexibility in the definition of “closure.” This has been problematic because this definition is tied directly to the contractor’s ability to make a profit, and the Army’s and regulator’s obligation to protect human health and the environment. Finding the balance between the two is often difficult, and to the extent possible, should be defined during the candidate evaluation process and documented in the PWS.
- *Including regulators throughout the process significantly enhances acceptance of the PBC approach.* Regulators are mixed in their support for the use of PBC. Involving them from the initial candidate evaluation meeting is critical as it allows them to provide input into the process, identifying which sites they believe to be good candidates for a PBC, as well as identifying their concerns with other sites. To date, regulators have participated throughout the development of the PWSs, attended the contractor site visit, and, once a contract is awarded, provided input into the project management plan (PMP). In some cases, this can defuse concerns about workload and the expectations for the state-supplied resources because the schedule identifies when primary documents will be ready for review. If the PMP schedule is too aggressive and the regulators know they will not be able to meet review times, adjustments can be made to match resource availabilities.
- *A knowledgeable contract officer (KO) and contracting officer representative (COR) is critical to the success of the PBC initiative.* The PBC concept is new to some installation personnel. Therefore, it is important to have personnel experienced in contracting available to provide assistance in developing the initial PWS, conducting the proposal evaluation, and in implementing the contract once awarded. Experience has shown that there will be instances when a modification will be required, particularly in establishing the project management plan and reviewing interim milestones proposed by the contractor. Experienced contracting personnel facilitate this process.
- *Inputting timely performance evaluations to Army databases is essential.* A key to success in PBC is relying on incentives to ensure performance meets the Army expectations. One incentive that the Army is relying upon is the fact that contractors know that their performance is being evaluated and entered into databases for future reference by Army technical evaluation boards awarding future performance-based contracts. The Army generally awards the contracts on a technically acceptable, low cost basis. Under this evaluation scheme, emphasis is placed on past performance; therefore, it is critical that all CORs input timely and accurate information into the databases to ensure that poor

performers are not awarded future contracts until their performance again reflects sufficient quality to warrant another award.

- *Installations should plan on updating permits and/or other regulatory documents (e.g., Federal Facility Agreement (FFA) schedules or lists of sites) prior to contract award.* These activities are often time-consuming and can slow progress for the PBC contractor. To the extent possible, installations should make an effort to have these activities completed prior to award to avoid unnecessary delays during execution of the contract.
- *Competition is key to getting a fair price.* Although a sole source offering can be constructed to reflect achievement of performance-based objectives, the Army experience to date has been that in such cases, without competition, there is little incentive for the contractor to take on much, if any, of the risk. Moreover, proposed technical approaches in these situations have included many “deluxe” add-ons not required to meet the performance objectives. The Army has been able to make these awards, although they have often times required lengthy negotiations with the sole bidder to get the price and the scope agreed upon.
- *Contractor transition is critical.* When an incumbent contractor is not awarded the new performance-based contract, there is a need to carefully orchestrate the transition from the incumbent to the PBC contractor. There will be questions raised by the PBC contractor that are best addressed by outgoing personnel. Installations need to ensure there is an adequate transition period to allow for transfer of data, coordination of schedule, and transfer of “institutional knowledge”. Because the PBC contractor is generally on a very aggressive schedule, and because they do not get payment until they reach specified milestones, there is a strong desire on their part to learn as much as they can as quickly as they can so they can meet their obligations to both the Army and their shareholders.
- *It is necessary to recognize that there is a short-term impact to the installation program during the transition to a PBC.* Installation personnel are finding that they are required to fill in the gaps due to loss of institutional knowledge should the incumbent not continue at the site. There is time required for new contractors to get up to speed; this time is most likely not built into the FFA or other schedule. In addition, at the onset of the contracts, regulators are sometimes overwhelmed with documents for review; however, this seems to settle down to a manageable workload once initial documents are reviewed and the contractor learns what is expected from the regulators.

### **Continuing Challenges**

As with any federal program, the Army PBC initiative continues to work through challenges in an effort to improve the overall implementation process and monitor awarded the progress of ongoing contracts. As this initiative moves into new areas and takes on more complicated sites, one challenge is to determine how to best define performance objectives for new tasks being incorporated into these contracts. This includes determining how to define an endpoint for characterization activities (i.e., how can we determine when adequate characterization has been accomplished and a performance standard has been met?). The performance standard used by the Army for most activities is “Army and Regulatory Approval.” In general, regulator approval of a document is considered meeting the milestone, and as such, allows for contractor payment.

However, experience has shown that in the characterization phase of the restoration program there is often a desire on the part of the regulators to conduct multiple phases of characterization before an agreed upon level of site understanding is reached. Under this scenario, it can be difficult for the Army to pinpoint when the contractor has met its obligations for site characterization. As such, the current Army approach is to set the performance objective as a signed Decision Document or Record of Decision, rather than an approved remedial investigation report.

Another challenge facing the Army program is determining how to balance contractor risk, overall cost for work, and the Army's desire to achieve its objectives of closing out sites and/or transferring property. Experience shows that PBC contractors are interested in a variety of remediation activities within a single contract. The more sites included, the better their ability to spread their risk across multiple sites. This is good for the Army because it allows fence-to-fence contracts that place entire installations on a schedule to completion. However, the Army needs to carefully weigh the level of uncertainty for some sites with the cost that will be proposed by the contractors. The Army will not award a contract "at any cost" and evaluates each site individually to determine if the level of uncertainty presented by site conditions (e.g., lack of characterization data, extreme technical challenge, regulatory uncertainty, etc.) will drive the proposed costs beyond what the Army is willing to pay. In fact, the Army decided not to make awards in FY03 and FY04 on two PBCs because the cost differential between the IGEs and the proposals were too great. In one case, analysis showed that the level of uncertainty associated with a group of landfills was the driver for the high costs. The Army conducted a data collection effort to reduce the uncertainty, and in FY03 was able to award the contract at an acceptable price.

The Army has observed that competition is a key driving force behind the success of this initiative. Therefore, there is an on-going effort to bring new contractors into the PBC arena, including ensuring that small businesses are provided ample opportunity to compete for the Army work. However, because of the cost associated with developing proposals, and the risk that the contractor is required to take in exchange for profit, many of the traditional Army remediation contractors are reluctant to participate. The Army is taking several measures to broaden the PBC vendor base, including conducting full and open competitions, identifying several procurements as small business set asides, and using existing contract mechanisms for contract awards. Nevertheless the Army is still seeking additional ways to broaden the base of qualified contractors willing to participate in the PBC initiative.

## **THE FUTURE OF THE ARMY PERFORMANCE-BASED CONTRACTING**

The Army will continue to actively implement this BIC Initiative. In FY05, the goal is to place 50 percent (approximately \$200 million) of installation restoration program dollars on PBCs, with increasing goals in FY06 and FY07. As shown in Table II, in FY05, this translates to evaluating approximately 20 installations to determine if a PBC strategy is a viable alternative to the existing execution path, initiating and awarding contracts for those installations where a performance-based contract is determined to be a favorable approach, and finalizing eight procurement actions that were initiated in FY04. The Army is also now looking at developing a



PBC strategy to regionalize long-term management costs across multiple sites and Army programs, including Formerly Used Defense Sites (FUDS); National Guard Bureau sites; and active, BRAC, and excess Army facilities. The Army is also in the process of piloting a PBC for the Site Investigation work required at all Military Munitions Response Program (MMRP) sites.

**Table II. Fiscal Year 2005 Planned Activities <sup>c</sup>**

Installation	State	Region	Program	Planned Activity
Los Alamitos / Camp Roberts	CA	9	Active	Procurement Action
Joliet Army Ammunition Plant	IL	5	Active	Procurement Action
Dugway Proving Ground	UT	8	Active	Procurement Action
Redstone Arsenal	AL	4	Active	Procurement Action
National Capital Region (Fort Meade)	MD	3	Active	Procurement Action
Fort Pickett	VA	3	Active	Procurement Action
Camp Crowder / Fort Chaffee	MO/AR	7	Active	Procurement Action
Fort Richardson/Haines Fuel Terminal	AK	10	Active	Procurement Action
Aberdeen Proving Ground	MD	3	Active	Evaluation/Possible Procurement
Seneca Army Depot	NY	2	BRAC	Evaluation/Possible Procurement
Savanna Army Depot	IL	5	BRAC	Evaluation/Possible Procurement
Badger Army Ammunition Plant	WI	5	Excess	Evaluation/Possible Procurement
Camp Bullis / Fort Sam Houston	TX	6	Active	Evaluation/Possible Procurement
Fort Bragg	NC	4	Active	Evaluation/Possible Procurement
Fort Drum	NY	2	Active	Evaluation/Possible Procurement
Forts Eustis, Story and Lee	VA	3	Active	Evaluation/Possible Procurement
Fort Gillem	GA	4	Active	Evaluation/Possible Procurement
Fort Knox	KY	4	Active	Evaluation/Possible Procurement
Fort Lewis / Yakima Firing Range	WA	10	Active	Evaluation/Possible Procurement
Kansas Army Ammunition Plant	KS	7	Active	Evaluation/Possible Procurement
Longhorn Army Ammunition Plant	TX	6	Excess	Evaluation/Possible Procurement
Picatinny Arsenal	NJ	2	Active	Evaluation/Possible Procurement
Red River Army Depot	TX	6	Active	Evaluation/Possible Procurement
Soldier System Center	MA	1	Active	Evaluation/Possible Procurement
Twin Cities Army Ammunition Plant	MN	7	Excess	Evaluation/Possible Procurement
White Sands Missile Range	NM	8	Active	Evaluation/Possible Procurement

## CONCLUSION

Through this effort, the Army estimates that in FY03 and FY04 it has achieved 17 percent in cost avoidance. Cost avoidance refers to the difference between the total cost of the awarded PBC and the government cost estimate for the scope of activities encompassed in the PBC. While there is some debate as to whether the government projections accurately reflect remediation costs, reducing funding requirements has allowed the Army to effectively increase the amount of money it can program toward new projects by 17 percent. In essence, it has met one of its primary goals -- to get more of the installation restoration program dollars out to installations, addressing real on-the-ground problems.

While PBC is not the solution for all installations and all sites, it is certainly seen as a preferable alternative to the traditional contracting strategies employed at many installations, and is seen as the plan of choice at most installations. The use of PBC has evolved considerably since 1999 when the first GFPR pilot was conceived, and will continue to evolve as observations from installations implementing these contracts highlight areas for improvement.

## REFERENCES

1. <http://aec.army.mil/usaec/cleanup/pbc00.html>
2. Freed, Alan. "*PERFORMANCE-BASED CONTRACTING: Observations, Successes, Lessons Learned, Fort Gordon.*" FY 2004 Defense Environmental Restoration Workshop
3. Taylor, Ed. Lake City Army Ammunition Plant. FY 2004 Defense Environmental Restoration Workshop
4. Bonilla, Victor. "*Fort Sheridan's Guaranteed Fixed Price Remediation Contract,*" FY 2004 Defense Environmental Restoration Workshop.

## FOOTNOTES

---

<sup>a</sup> The Army Reserves contract was awarded for activities in 10 states, including Connecticut, Massachusetts, Maine, Rhode Island, Pennsylvania, Wisconsin, California, Washington, Ohio, and Missouri.

<sup>b</sup> In addition to the performance-based contracts awarded since 2000, the Army awarded a Program Management Contract (PMC) at the Rocky Mountain Arsenal, near Denver, Colorado (EPA Region 8) in 1997. This contract qualifies as a performance-based contract because of the performance objectives and incentives incorporated into the overall contract.

<sup>c</sup> Information in this table is current as of December 2004. Additional information is available at the US Army Environmental Center website at <http://aec.army.mil>.