

MANAGEMENT ANALYSIS
OF THE
DEPARTMENT OF DEFENSE
ENVIRONMENTAL RESTORATION PROGRAM

FINAL REPORT

PREPARED BY

CLEAN SITES, INC

FOR THE

OFFICE OF THE UNDER SECRETARY OF DEFENSE
FOR
ENVIRONMENTAL SECURITY

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Abstract The Deputy Undersecretary of Defense for Environmental Security asked Clean Sites to undertake an independent review of the Department's Environmental Restoration Program. The first phase was an independent assessment of the Department's progress in identifying and restoring contaminated areas. In this phase, completed in the summer of 1996, Clean Sites undertook a thorough review and analysis of the information the Department and EPA were collecting about the progress of the Defense Environmental Restoration Program (DERP), and concluded that the program is progressing reasonably well in terms of its own goals and in comparison to other programs in the public and private sectors.		
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Clean Sites, however, is solely responsible for the report's findings, conclusions, and recommendations.

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Introduction

The Deputy Undersecretary of Defense for Environmental Security asked Clean Sites to undertake an independent review of the Department's Environmental Restoration Program. The first phase was an independent assessment of the Department's progress in identifying and restoring contaminated areas. In this phase, completed in the summer of 1996, Clean Sites undertook a thorough review and analysis of the information the Department and EPA were collecting about the progress of the Defense Environmental Restoration Program (DERP)*, and concluded that the program is progressing reasonably well in terms of its own goals and in comparison to other programs in the public and private sectors.¹

The second step was a review of the Department's management of the DERP from the perspectives of both the Office of the Secretary of Defense (OSD) and the individual Components.² This document is the report on the second phase.

Clean Sites obtained the information on which this study is based from several sources. The major source was a series of open ended interviews with DERP staff within the Department of Defense. Clean Sites interviewed over 100 individuals, ranging from senior DERP managers to individuals overseeing specific site cleanups, to obtain their views on the most important problems

* Although they are technically two separate programs, we have used the abbreviation DERP in this report to refer to both the Defense Environmental Restoration Program and the Base Realignment and Closure Program.

¹ The results of the first phase were presented in a "Program Performance Report" and summary of that report entitled "Report Highlights" submitted to the Deputy Undersecretary's Office in June, 1996.

² The term Components is used in this report to refer to the separate military departments and the Defense Logistics Agency.

facing the program and the most significant opportunities for improving program management. These interviews covered headquarters offices and over twenty-five installations throughout the country. We also interviewed a limited number of regulators, community members, and contractors.

In addition to these interviews, Clean Sites reviewed a number of guidance documents issued by the Secretary's office and the individual Components, and established a Blue Ribbon Panel to oversee our study. The Blue Ribbon Panel reviewed and commented on the study's approach and findings, and offered observations and recommendations to Clean Sites on steps the Department might take to improve the management of the DERP. The members of the Blue Ribbon Panel included Superfund program managers from major private companies and contractors, Congressional staff, and representatives from the Congressional Budget Office, state and federal environmental regulatory agencies, and communities surrounding defense bases. (see Figure 1 for a list of members.)

General Findings

The DERP has a number of characteristics which make it a significant management challenge. Among these are:

- It is a very large program. The DERP has an annual budget exceeding 2.1 billion dollars. Fewer than 600 US corporations have higher annual revenues.³
- It is a diffuse program. The DERP is managed through five major Components, and dozens of sub-units (Major Commands), with decisions being made by field staff at over 700 installations throughout the United States and its territories.
- It is undergoing constant modification in policies and processes. Although the nation's programs to clean up contaminated sites have been in existence for over a

³ *Fortune*, April 28, 1997

Figure 1

CLEAN SITES BLUE RIBBON PANEL
Management Review of the
DEPARTMENT OF DEFENSE
Environmental Restoration Program

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decade, managers in both the public and private sectors are continually modifying policies and processes in order to improve the efficiency and effectiveness of these programs. Modifications are particularly common in the federal government where senior Department management, OMB, and Congressional officials are frequently adjusting policies and processes.

- It is constantly having to respond to new technical, financial, and political issues. New cleanup technologies are being continually developed and need to be evaluated and adopted where appropriate; budget decisions frequently change the resources available for the DERP in total and for particular operations; and pressures from elected officials at the federal, state, and local levels can force the program to modify its activities.
- It requires a consistency of approach in addressing disparate situations. Although each site has its own set of physical characteristics, contamination problems, political situation, and risks, the DERP has to respond to all of these differences in a consistent manner.

Overall, our review found that the Department has met this challenge well and that the program has a number of positive and encouraging attributes.

The staff we interviewed were generally experienced, competent, and dedicated. They were committed to accomplish their job of getting sites cleaned up quickly and cost-effectively in spite of many impediments and perverse incentives. They felt that they were well supported technically both by their contractors and by the Centers of Expertise the different Components have established. And, particularly for those who had several years of experience in the DERP, they often were able to exercise a surprising degree of flexibility in carrying out their responsibilities.

We also concluded that the Department has made significant improvements in the DERP in recent years. Among the most important of these are:

- **The adoption of the relative risk site evaluation (RRSE) system for setting priorities.** The RRSE is a rational risk ranking system which incorporates the appropriate factors for assessing risks, yet is simple enough that it can be applied to all of the Department's tens of thousands of sites in an expeditious and economical manner.
- **The emphasis on partnerships with regulators.** The recent emphasis on forming partnerships with federal, state, and local regulators appears to be paying off in terms of significantly quicker agreement and less delay in addressing cleanup issues.
- **Improved public involvement.** Although many cleanup decisions remain controversial, the emphasis on establishing Restoration Advisory Boards (RABs) that include concerned members of the affected community appears to have provided a mechanism which allows the exchange of information and views, and the opportunity to establish a cooperative approach to resolving issues.
- **The collection of consistent site specific information.** During the 1980s, the information on the progress of the DERP presented to Congress appeared to be substantially inconsistent from year to year and from site to site. Actions taken over the past few years to improve the management data base appears to have eliminated most of these problems.

Finally, we found that the DERP was making reasonable progress towards achieving its goals in spite of the fact that the program improvements identified above had been implemented so recently that they are just beginning to have a discernable impact on the program's progress.

We also found, however, that many opportunities for program improvement remain. This is to be expected in any program as large, complex and diffuse as the DERP. With the adoption of the improvements listed above, the management emphasis needs to shift from making major program changes to one of making continued program improvement. This report presents the

findings of our interviews and analyses, and presents our recommendations for improvements that the Department and the individual Components should adopt or consider.

The Budget Problem

One fundamental issue that was frequently raised but which does not fit conveniently into any of the following sections of this report was concern about budget levels, the availability of funds, and restrictions placed on how the DERP funds can be used. These concerns were stimulated by a series of events which have occurred in recent years:

- The DERP budgets dropped significantly,
- Future budgets appeared very unstable,
- Congress and DOD financial managers imposed arbitrary restrictions on what the funds could be used for and the extent to which they could be shifted from one project to another.
- In FY 1997, there was a significant delay between the time the appropriations bill was passed and the time the money actually became available to support contractors.

All of these events caused significant disruptions to the program and were detrimental to its efficient implementation. Clearly there is no way to guarantee that such disruptions will not occur. However, we believe that it is just as clear that it is in the best interest of the program to try to avoid them. This is one area in which OSD could have a significant positive impact on the implementation of the program and the morale of the staff.

With respect to funding levels, predictability and stability are more important to the efficient implementation of the program than the amount of funds available.⁴ We recommend that OSD, using arguments about the need for stable funding in order to support an efficient program together with the demonstrated management improvements it has already made and is continuing to make, attempt to obtain as much agreement as possible from OSD and Component Comptrollers, OMB, and Congress regarding stable funding levels.

With respect to the actual availability of funds, we recommend that OSD work with the Comptrollers to ensure that at least some of the funds are released to the installations right at the beginning of the fiscal year. Shutting down contractors because of a delay in funds being released can result in a substantial waste of money and significant delays in project completions.

Among the artificial constraints that were of greatest concern to the project managers were requirements that a certain percentage of the funds be spent on construction, limiting the amount that can be spent on site characterization, study, and design, and restrictions on reprogramming funds across sites, phases, and time. Many Remedial Project Managers (RPMs) believe that many complex sites still need further study in order to identify effective and efficient solutions. Although we understand why such restrictions have been imposed, we strongly recommend that OSD continue its efforts to reduce such restrictions, particularly in the case of installations and sub-units that are exceeding their targets in terms of program progress and the efficient use of funds.

TERMINOLOGY

Although not necessarily in accord with standard DoD terminology, we have used the following terms to refer to parts of the DERP management structure:

⁴ The amount of the budget has a major influence on how soon the entire program is completed, of course, and if too low can affect the efficiency of the program's implementation as well.

- ▶ “OSD” to refer generally to the office of the Secretary of Defense. Most of the references to OSD would be carried out by the Office of the Deputy Undersecretary of Defense for Environmental Security (ODUSD(ES));
- ▶ “Components” to refer to the Defense Logistics Agency and Defense Special Weapons Agency as well as the Departments of Army, Navy, and Air Force;
- “Department” and “DoD” to refer to the combination of OSD and the Components;
- ▶ “sub-unit” to refer to offices or organizations within the Components (for example, Major Commands) included in the DERP’s management structure.

GENERAL PRINCIPLES

We have tried to follow some general principles in making these recommendations. Among these are:

- Making changes in a large bureaucracy is expensive, and we have, therefore, been hesitant to recommend significant changes unless there are clear and significant benefits.
- We see OSD’s role as being primarily: 1) establishing policies in cases where policies need to be consistent throughout the Department; 2) providing overall guidance and direction for the DERP; 3) representing the DERP to and negotiating with Congress and the Executive Office regarding budgeting and policy issues; and 4) working with the Components to help them implement consistent, effective, and high quality programs.

- We believe that, with good, clear policy guidance and direction, and an effective, responsive system for monitoring program progress, the authority to make decisions should be delegated as far as possible.
- We have focused primarily on positive incentives (as opposed to punishments) for encouraging better performance.
- We have made recommendations of different strength, sometimes recommending that the Department “do” something, some times recommending that the Department “consider” doing something, and, in the weakest case, indicating that the Department “might consider” doing something. The strongest recommendations indicate that in these cases we believe that the benefits of implementing the recommendation outweigh the costs; in the “consider” recommendation, we are less certain about the relative magnitude of the benefits and costs; and in the “might consider” recommendations, we believe that the recommendation would bring some benefits but that the costs of implementing the recommendation might well be greater. In the latter two cases, we particularly urge the Department to evaluate the relative benefits and costs as they consider the recommendation.

Communications

Effective and efficient communications systems are necessary for any program to operate properly. The need is particularly great in a program as large and complex as the DERP. We have addressed several different communications needs. The first is to clearly communicate the program's management philosophy to the staff. The second is to establish efficient communications systems within the program, both vertically (up and down the management hierarchy) and horizontally (among peers). The third is to communicate well with the major DERP stakeholders outside the Department.

COMMUNICATING MANAGEMENT PHILOSOPHY

The size and diversity of the DERP place a premium on the program managers clearly articulating the program's philosophy, policies and processes, and establishing efficient and effective mechanisms for quickly communicating this information consistently through the management system. In our review of the DERP, we have focused on three aspects of this issue. The first is the clarity with which the Department has addressed what we call the "mission-metrics spectrum". The second is the adequacy of the Planning, Programming, and Budgeting Process spectrum which the Department has identified as the essential process it uses for implementing the DERP. The third is its priority setting process. Although addressed separately, these three elements for communicating the program's philosophy and policies are and must be closely interrelated.

Mission-Metrics

Management analysts commonly emphasize the importance of an organization clearly defining its mission, vision, goals, and objectives, and then establishing processes for both measuring its success in achieving its goals and for providing feedback to the organization's staff about weaknesses and strengths.

Clean Sites, both in our review of the Department's guidance documents and interviews with the Environmental Security staff, evaluated the extent to which the Department has adopted and implemented this management philosophy. The purpose was not to determine the extent to which the Department has rigorously adopted the specific terminology and structure in the mission-metrics spectrum. It was rather to evaluate the extent to which DoD has attempted to provide this type of guidance and the effectiveness and consistency of these efforts. For the purposes of these reviews, we have used the following general definitions of these management terms:

- **Mission:** General statements about what the program is attempting to accomplish.
- **Vision:** Statements about how the Department wants to carry out its mission and how it wants to be perceived by its staff, regulatory agencies, Congress, and the general public.
- **Goals:** Statements about what the Department intends to accomplish in the short and long run, set forth in a more specific manner than in the mission and vision statements. A given mission can have several goals, and there can be several layers of goals at the different levels within the Department.

- **Objectives:** Objectives are short term, quantifiable, and specific measures of accomplishment in pursuit of the Department's mission, vision, and goals. Objectives are associated with individual goals, and can also exist at various levels within the Department.
- **Metrics:** Metrics measure the extent to which the program is achieving its objectives, goals, and mission.
- **Evaluation and Feedback:** The DERP should include structured and frequent processes for evaluating the information being gathered about the program's implementation and providing clear feedback to the staff at all levels on how well the program is progressing and what should be done to improve its progress. Specific examples can be useful in a feedback process.

In reviewing the guidance documents, we identified statements and assigned them to a category in the mission-metrics spectrum on the basis of their content rather than the terminology used. For example, a document might state that the "objectives" of the DERP are "to protect human health and the environment, clean up contaminated sites as quickly as resources permit, and to expedite cleanup to facilitate disposal of excess properties for local reuse." In the mission-metrics spectrum this statement would be considered more of a mission statement than an "objective," and we therefore assigned it to the category of "mission statements" in our review. Clearly, such assignments are somewhat subjective, and the differences between the different categories in the mission-metrics spectrum are often blurred.

In our interviews, we used both the terminology indicated above and, if the staff member was unclear about the meaning of the terms, the concepts related to the various stages in this spectrum. Again, we were concerned much more about the concepts than the terminology, and made special efforts to avoid becoming caught up in the terminology question because of the sometimes negative reaction that "the mission-vision thing" can stimulate.

Our conclusions from these two sources of information about the Department's implementation of this management philosophy approach for each of the separate steps in the spectrum is as follows:

Mission

In government programs, the enabling legislation usually sets forth the program's mission, purpose, and goals. This is not necessarily true, however, in the case of the environmental cleanup programs. In particular, CERCLA and SARA, the two bills establishing the federal Superfund program, lack an introductory section setting forth the purpose of the legislation. Senator Randolph and others attempted to correct this deficiency in floor statements, but it is unreasonable to expect the individuals implementing the program to have a sufficient knowledge of the legislative history to be aware of these statements.

With this legislative history, the definition of mission or purpose becomes the responsibility of the agencies implementing the program. However, in our review of the DoD documents we found only 10 efforts to do so.⁵ Several documents addressing RABs included mission-type statements for the RAB program, and other documents contained mission-like statements for specific organizations, for specific activities within the DERP, or for the documents themselves. These, however, were not considered to be mission statements because they did not deal with the mission of the larger DERP.

When we interviewed the DERP staff, however, we found a relatively coherent and consistent perspective on the program's mission. Although the way in which they stated the mission varied, most experienced staff identified two elements -- one relating to risk reduction (e.g. reduce risk, clean up contaminated sites, close-out sites) and the other related to cost control

⁵ It is, of course, quite possible that DoD guidance documents issued prior to those supplied for review did set forth a mission statement, but no effort was made to review earlier documents since the current managers apparently did not consider them to be relevant to this review and analysis.

(e.g. cost effectively, in the least cost manner, efficiently)⁶. Several interviews with community representatives also indicated that the RPMs they interacted with were communicating a mission involving these two elements.

More experienced staff appear to have a greater commonality of understanding. In contrast, one recently hired RPM said that he thought the mission of the program was “to atone for past sins.”

Although many of the staff had a consistent perception of the program’s mission, they were unsure of where their understanding came from. This observation is consistent with the observation that the guidance documents have not presented a clean and consistent statement of the mission. The apparent common understanding seems to result from experience as well as informal communications among the DERP staff.

Vision

Organizations frequently use vision statements to supplement the usually straightforward specification of the purpose of the program contained in the mission statement. Several of the documents we reviewed, or the cover memos for these documents, implied some elements of this vision, but usually in passing. Most related to the Department’s “new” (in 1994) policy of increasing community involvement in the DERP.

None of the documents we reviewed explicitly attempted to set forth a vision statement for the DERP. Indeed the only explicit mention of a vision that we found was in the 1994 Annual

⁶ There can be, of course, significant differences in what these different characterizations of risk reduction and efficiency mean. Occasionally we interviewed managers who had given serious thought to the question of the program’s mission, and they would emphasize the importance of focusing, for instance, on “close-out” rather than “cleanup” as the appropriate characterization of risk reduction -- i.e. that the focus should be on protecting human health and the environment in the fastest, most efficient way possible, not just through cleanup activities.

Report to Congress.⁷ This document indicated that a vision existed, but neglected to state what it was. Even if it had stated the vision, the primary audience for this document is Congress and the public, not the DERP staff. A vision statement that is not communicated to the organization's staff is of minimal management value.

In the staff interviews, the questions regarding the Department's vision for implementing the DERP received a much less coherent response than questions regarding the mission. To some extent, this difference probably resulted from a lack of understanding about the concept of a program vision. However, we believe that the problem is more fundamental than uncertainty about terminology.

The Department's actions over the past few years suggest that the DERP's managers have a vision which includes working cooperatively with their stakeholders and the regulators to reduce the risk associated with these sites as quickly as possible. The actions that this vision suggests -- partnerships, Restoration Advisory Boards, placing a priority on high risk sites, and so forth -- are being implemented, but they are being implemented as requirements, not as a vision.

Goals

The Department has been mostly successful in stating its goals. The Office of the Secretary initially set forth the current goals, shown in Figure 2, in April, 1996.

Subsequent documents issued by OSD and the Components have repeated these goals in a consistent manner, and the DERP staff members we interviewed were generally familiar with them. However, the goals have only been stated for the program as a whole, and, at the time we were conducting this review, had not been formally allocated or assigned to the individual Components, sub-units, or installations.

⁷ Department of Defense, "Defense Environmental Cleanup Program Annual Report to Congress for Fiscal Year 1993", p.4 (March 31, 1994)

Figure 2
BRAC and DERP Goals**Goals for the BRAC Program:**

Components will ensure continued protection of human health and the environment as well as compliance with legally enforceable agreements, orders and laws while making property available for reuse to the maximum extent feasible. Restoration at closing and realigning bases will include sites contaminated by past or current defense activities and where cleanup processes are required by the Comprehensive Environmental Response, Compensation, and Liability Act or the Resource Conservation and Recovery Act. Components will fund environmental restoration activities in the same manner as directed in the Environmental Security paragraph (below), with the following requirements:

- clean up all high relative risk sites by the end of FY 2001 (due to the expiration of the BRAC account), and
- clean up to "no further action" or have remedial systems in place within three years after a reuse plan has been finalized or after base closure, whichever is earlier.

Goals for the Environmental Restoration Program:

Components will ensure continued protection of human health and the environment and will comply with legally enforceable agreements and orders. Restoration activities will clean up to a lower relative risk category, or have remedial systems in place for:

- 1) 50- and 100-percent of identified high relative risk sites by the end of FY 2002 and FY 2007, respectively (or within 3 years for any newly identified high relative risk sites);
- 2) medium risk sites by FY 2011;
- 3) low relative risk sites by FY 2014.

Restoration activities also will support associated requirements for the ATSDR and DSMOA. Components will enter into new, or adjust existing agreements, using the concept of "flexible" schedules and relative-risk ranking as determined by and in accordance with the DoD Relative Risk Site Evaluation Primer, Summer 1994 (Interim Edition) procedures.

Source: William Perry, "Defense Planning Guidance, FY 1998-2003" issued 10 April, 1996, pp77, 80.

The Component's senior program managers apparently understand that each Component is expected to achieve the same percentage of completions as the whole program.⁸ However, this *pro rata* allocation is unlikely to work throughout the system (i.e. it would probably be impossible, and certainly inefficient, for each installation to achieve the same percentage of completions as the entire program), but no other allocations have apparently been made below the Component level.

Another problem with the goals is that they are relatively long term goals — pertaining up to two decades in the future. This long-term focus tends to reduce their impact on short term decisions.

For these reasons, because they are not tied to funding, and because there are few if any punitive measures associated with failure to meet them, the current goals have little meaning at the field level except as an indication of priorities.

Objectives

Although a number of documents we reviewed referred to "objectives," these often were statements more appropriately placed in the mission, vision, or goals categories because they pertained not to near term specific measures of accomplishment, but to longer term programmatic aspirations.

We were unable to find any evidence in the document review or our interviews that the goals have been translated into objectives in the sense they were defined at the beginning of this section. That is, we found no objectives that specifically apply to individual Components, sub-

⁸ Specific goals such as these also have little meaning if they cannot be attained. Apparently each of the Components believes that it can attain its *pro rata* share of the goals. However, the ability of the Department and the Components and the individual installation to attain the goals will depend very much upon Congressional funding and regulatory and public cooperation. An assumption about funding stability, funding levels, and acceptability of proposed actions, is thus implicit in these goals.

units, or installations, or to accomplishments desired before the dates established in the goal statements, or to a combination of the two -- i.e. to individual units or sub-units for the intervening years.

Metrics

The Department has made a significant effort to develop metrics that will be applied uniformly throughout the Components. These "Measures of Merit" (MOMs) were set forth in a series of memoranda issued by the Deputy Under Secretary of Defense (Environmental Security) and the Components.⁹

Although the MOMs reflect the goals established by the program, they are much more complex than the goals and, therefore, do not provide good feedback on how well the DERP is achieving these goals. Having measures that provide a direct indication of this progress would provide clearer measures of the program's success in achieving its goals.

As currently depicted, they are also relatively insensitive to short term changes, do not provide clear feedback on interim progress, and are not particularly meaningful at the installation level. Modifying or supplementing the MOMs to correct these weaknesses would make them more effective measures of progress and more effective motivators.

Evaluation and Feedback

Although only a few documents we reviewed explicitly addressed the issue of evaluation and feedback, the Department does hold periodic "in-progress-reviews" at the top management levels. These reviews both assess general program progress and address many special issues identified by OSD.

⁹ In at least one case a service (Air Force) has added some additional MOMs of its own.

The evaluation and feedback processes also apparently occur at lower levels, but in a less formal and consistent manner. Each Component and many sub-units have adopted their own approach. We observed some of this feed back occurring at annual meetings of the Component program staff. However, not all staff attend these meetings, and it is unclear whether most components have instituted formal and frequent opportunities for feed back (up and down) outside of this mechanism. The lack of clear goals and objectives that apply to sub-units or installations also diminishes the clarity of this process.

RECOMMENDATIONS

We recommend that OSD, in association with the Components' senior program managers, prepare clear and concise mission and vision statements for the DERP. Because there is apparently such a consistent understanding of the mission (and, although not articulated, we believe an implicit understanding of the current administration's vision for how the DERP should be implemented), preparing these statements should not be a major undertaking.

We suggest that the proposed statements be shared for review and comment with the entire DERP staff, Congressional staff, the regulators, and the RABs before they are officially adopted. Doing so would make them feel part of the system, and might help to identify and clarify some current (though perhaps hidden) disagreements.

Once officially adopted, the mission and vision statements should be communicated broadly and frequently, without modification. In addition, the Components (and sub-units) should be able to complement the OSD version of the vision with visions of their own.

The final mission statement should be congruent with the statements of goals, measures of merit, and other program measures. They should all focus on the same end result and indicators of accomplishment. Any incongruence should be corrected by modifying the goals, MOMs, and other program measures.

OSD should use these goals and MOMs to attempt to reach an understanding with Congress about funding levels. The more the DoD staff thinks there is a relationship between funding and the achievement of the goals, the more meaningful they will be.

Each Component should reach similar agreements with its sub-units -- i.e., that the sub-units will achieve their goals and objectives on the assumption of reliable funding. Sub-units may want to make similar agreements with installations.

OSD should negotiate intermediate (preferably annual) objectives for the Components that are consistent with the long-term goals. The Components should in turn negotiate corresponding objectives with their sub-units. This will allow everyone to understand what is expected and generate milestones allowing clear measures of progress.

OSD should establish MOMs or other metrics that directly measure progress for each of the goals and objectives established for the DERP. For instance, if the goal only specifies the number of sites with remedies in place, make the number of sites with remedies in place the only measure in these metrics.

The Department currently prepares graphical depictions of the MOMs showing cumulative progress. Because of the number of sites in the system, annual changes appear very small. Depictions showing annual rather than cumulative accomplishments would provide a more dramatic and clearer sense of progress. Depicting the metrics in terms of the percent of annual goals achieved would provide a particularly dramatic summary.

DISCUSSION

Most management systems emphasizing total quality management place a heavy emphasis on the development, articulation and implementation of a clear mission-feedback spectrum. The Department appears to have adopted the concepts that would likely be the basis of a mission

statement and the rest of the mission-metrics system -- for example, reducing risks, cost effectiveness, quick response, collaboratively working with regulators and the community. All that seems to be missing in the DERP is a clear and consistent articulation of these concepts.

Because the DERP implements several different laws, and the most important of these laws contains no explicit statement of its purpose, this lack of a clear statement of mission and vision may be particularly important. Indeed, the fact that thousands of individuals in different, but interacting, complex bureaucracies are spending billions of dollars on implementing a program with no *explicit* purpose may account for some of the difficulty that DoD and the rest of the nation has had in implementing the cleanup program. The fact that the budget and other program aspects are being devolved to the individual services adds to the importance of having clear mission and vision statements.

It is important, however, if they are to be effective in guiding the program, that statements of mission, vision, goals, etc. be:

- Consistent with one another;
- Consistent throughout the different parts of the Department responsible for implementing the program; and,
- Consistent over time.

Government organizations often tend to undervalue the need for consistency, and particularly tend to undervalue the need for consistency over time. In an organization as complex as DoD with diffuse authority and responsibility for implementing the DERP, it takes significant time and effort for a common perception to be understood, accepted, and adopted throughout the organization.

Observations with respect to the individual Components of the mission-metrics spectrum are as follows:

Mission: If the Department attempts to develop a mission statement, it will have to consider the relative emphasis to be placed on such factors as protecting human health and the environment, cost effectiveness, speed, efficiency, as well as the program's contribution to the security of the United States.

Vision: Some of the factors that might be included in a vision statement are speed and efficiency, the role of the affected communities and general public, and the way in which the program will interact with relevant regulatory and other governmental agencies.

Goals: The Department's definition of its goals displays the virtues of specificity and clarity. These are not "aspirational goals," such as the "fishable-swimmable" goals set forth in the Clean Water Act, but precise numerical goals that the Department intends to achieve. It is important that such specific goals be attainable. Establishing precise goals that require a reach can stimulate increased effort and efficiency, but establishing precise goals that are unattainable will tend to undermine the morale and operating efficiency of the organization. This is particularly true if the staff has no control over many of the factors, such as the size of the budget, which are necessary to attain the goals. Given these considerations, the Department might consider relating the goals to the adequacy of the resources which are made available.

The importance of clearly allocating the goals results from the fact that, if the responsibility for achieving the overall goal is not distributed in some clear fashion, everyone is likely to assume that someone else is responsible.

Objectives: If the Department allocates responsibility for achieving the program's goals through the organization, these allocations will define the most important objectives. Establishing interim milestones for these objectives will also provide an early warning about the Department's likely success in achieving its goals and will provide more meaningful feedback to the Components, sub-units, and staff about how well they are doing. Other objectives could relate to elements of the vision (such as establishing partnerships) that are not incorporated in the goals.

Objectives should be precise and quantitative. Each objective should have an associated metric, and this requirement should limit the number of objectives established.¹⁰

Metrics: The Department has put substantial effort into establishing its MOMs. Therefore it may want to supplement these with other program performance indicators rather than modify the MOMs it has already adopted.

Even with the existing MOMs, however, the Department may want to reconsider how they are being presented. Progress tends to appear to be very slow when depicted in a graph that shows the status of all sites. Showing annual accomplishments rather than cumulative accomplishment would show progress more dramatically, and showing annual accomplishments as a percentage of annual goals would provide even a more dramatic presentation. The more dramatic presentations could provide positive reinforcement to the Department's staff as well as providing a stronger picture to the outside world.¹¹

Feedback: Feedback is a very important element of the mission-metrics spectrum concept, and the feedback (both positive and negative) should occur frequently and clearly from the top of the system to the bottom. Because the documents we reviewed did not extensively address the feedback element, we have few observations to make.

We might point out though that ODUSD(ES), in addition to its extremely important responsibilities for representing the Department to Congress and the outside world, should not overlook the importance of providing the same message to the DERP staff. If you are telling Congress that the program is doing well, you should be giving the staff the same information.

¹⁰ The metrics themselves, however, do not necessarily have to be reported. If the objectives are defined appropriately, the only information that needs to be reported is whether they have been achieved.

¹¹ However, more dramatic presentations would also depict problems more clearly. This has an advantage in terms of monitoring progress, but could send negative messages to the staff and the outside world.

The Department is placing the Annual Report to Congress on its Internet site which should facilitate this effort as long as someone is telling the staff to take a look at how well they are doing.¹²

Planning-Programming-Budgeting Process

The Department has laid out a management process which incorporates planning, programming, budgeting, and execution steps. Figure 3 shows the Department's depiction of this process which Clean Sites was explicitly asked to review.

There were three steps in our review. The first was an analysis of the process itself as set forth in the statement of work. The second was a review of the guidance documents to determine whether the process was clearly being described in the guidance. The third was to determine the staff's reaction to the process by including questions regarding the process in our interviews.

The basic steps in the planning-execution process appear quite rational. We did find aspects of the diagram somewhat confusing, but decided not to overanalyze the process as presented in the diagram.¹³ Instead, we simplified the diagram for our document review and interview purposes, addressing only the major steps in the process.

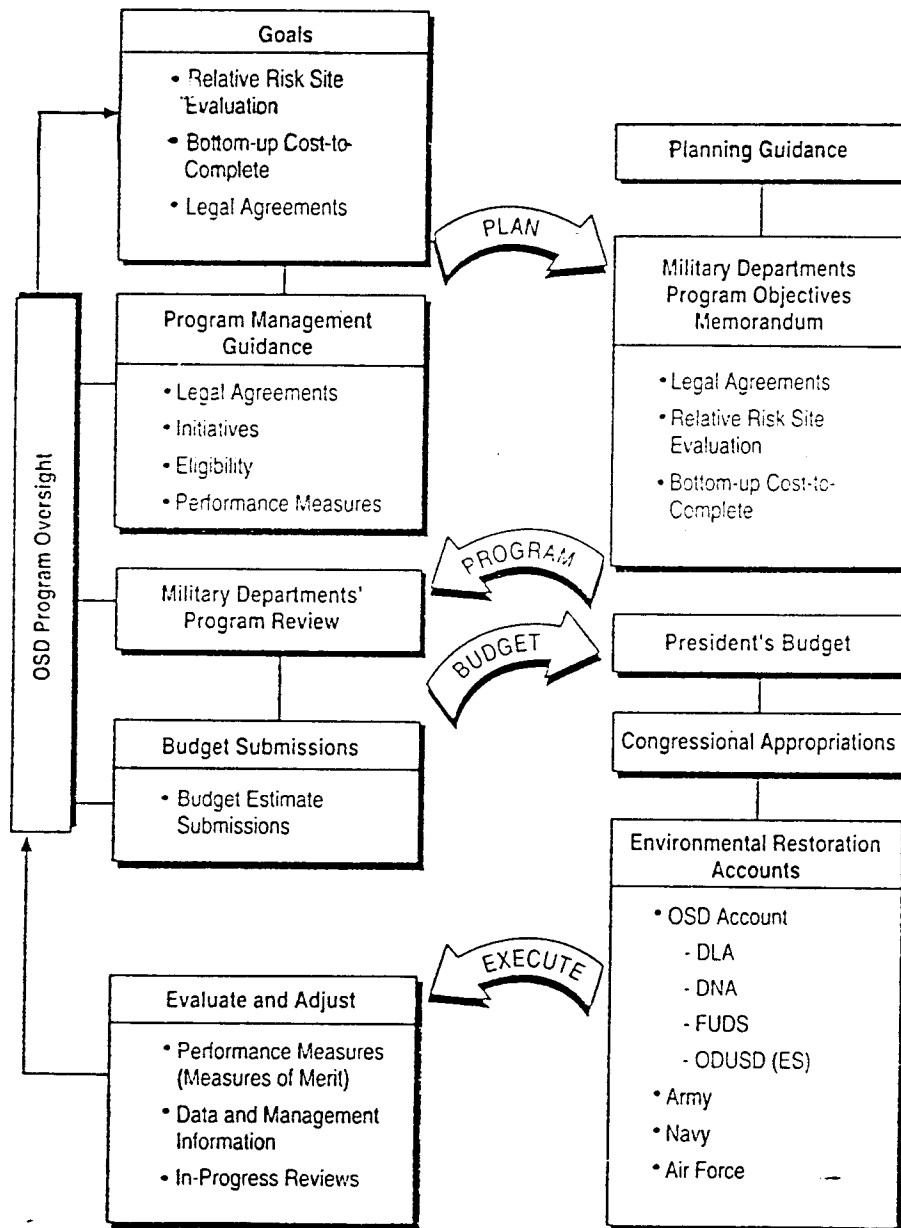
¹² However, the current version of the Annual Report to Congress on the DUSD(ES) Web site is not downloadable and requires the user to view the document on-line. It also does not have full text search capability. This approach to placing documents on the Internet is frustrating and inefficient for both the user and DOD.

¹³ Some of the aspects of the diagram that we found confusing included the fact that certain steps (planning guidance and program management guidance) appear to be left out of the process flow, and some of the sub-elements appeared to be inconsistent with the step with which they are associated (for instance, the sub-elements listed under goals are not goals but processes and constraints).

Defense Environmental Restoration Program

Figure 3

The Planning, Programming, and Budgeting Process - Establishing Requirements and Setting Priorities for Executing the Work



In the second step of the review, our effort to analyze the documents within the planning-execution spectrum was largely unsuccessful. The first problem was that it was very difficult to assign individual documents to the different steps of this spectrum. The titles usually did not clearly indicate which step the document related to, and it was difficult to make such assignments on the basis of content as well. Some of the factors that account for the difficulty in assigning documents to the various steps in the planning-execution spectrum were:

- There was no effort in the document titles or introductory paragraphs to clearly assign the document to a particular step in the planning-execution process. Even when the title included one of the terms in the planning-execution spectrum, it often appeared as if the document was more relevant to another step.
- The definition of the planning-execution process did not include a clear characterization of what type of guidance should be included in each step or what the distinction is between the steps.
- Many of the documents appear to cover several steps.
- Many of the documents address specific issues such as RABs, and it is unclear where in the planning-execution spectrum these issues belonged. (Again, the document might address the planning for, funding of, and operations of the RAB.)

In addition to the difficulty experienced in assigning documents to one of the steps in the planning-execution spectrum, it was not clear that the content of these documents fit together in a progression such as the spectrum might indicate. Such a progression might, for instance, run from the general to the specific, with the planning documents setting forth general planning principles, and the subsequent documents providing more details and specifics with respect to

each of these principles.¹⁴ We were unable to perceive this or any other type of progression in our review.

In the third step of our review, the responses to our survey questions concerning the planning-execution process indicated that the staff members (at least the more experienced staff members) we interviewed were generally aware of and accepted the process. Their only concern was that process might be imposing additional data collection and reporting demands on them. Our explorations, however, suggested that they were no more able than we were to distinguish one type of guidance from another (i.e. to distinguish between planning and programming guidance documents). Nevertheless, they were generally unconcerned about this ambiguity, felt that they had adequate guidance to do what they had to do when they had to do it, and wanted to provide no encouragement to the Department to formalize the process any further than it already is.

RECOMMENDATIONS

Although the implementation of the planning-execution spectrum lacks clarity, the process appears to be working adequately and we, therefore, have no recommendations for modifying it.

DISCUSSION

Although we recommend no changes, if the Department wishes to increase the clarity of the process, it could impose requirements regarding the preparation of guidance documents to formalize and thereby clarify the planning-execution process. For instance, the Department could:

- Provide clear guidance on what should be included in the documents pertaining to each of the steps in the spectrum.

¹⁴ We are unsure, however, whether this is the intended progression.

- Make the progression that is intended to proceed through the documents explicit. This would assist both the issuing office in preparing the documents and the intended audience in interpreting them.
- Develop an identification system for the documents that both clearly indicates where they lie in the sequence, and links them together. For instance, the documents could be titled “1996 Planning Guidance for the Defense Environmental Restoration Program,” “1996 Programming Guidance,” etc. This consistent identification could then be reinforced by an introductory paragraph that specifically references the previous documents in the sequence.
- Attempt to use a consistent organization and structure for the documents.¹⁵

However, such formalization would impose costs on the program in terms of increased rigidity, decreased responsiveness, and potential increases in hostility towards “the system.” We are unable to identify any significant benefits from increased formalization which would offset these costs.

Setting Priorities

The Department’s adoption of relative risk site evaluation process and its use in establishing the program goals provides a clear statement that the DERP’s main priority is to reduce risk, particularly at the highest risk sites. The goals are not, however, fully adequate for setting priorities for two reasons:

¹⁵ For instance, ensuring that section 5 of the budget guidance provided details on the principles and guidance set forth in section 5 of both the planning guidance and the programming guidance for that year.

- In many cases there are more high risk sites than can be addressed in any year with expected funding, and the goals provide no guidance about how to choose among these sites; and
- Relative risk is not the only important consideration (particularly under the BRAC program) and the goals provide no explicit guidance for how other factors should be considered in setting priorities. Attempting to include all of these considerations in the statement of the goals themselves would substantially undermine their clarity.

Currently, the separate Components and sub-units are dealing with these issues in their own ways, but the priority setting systems in the different Components appear to differ significantly.

In the Federal Facilities Environmental Restoration Dialogue Committee¹⁶ all the federal agencies agreed on a series of factors that could be considered in establishing priorities. Figure 4 lists these factors. However, they are stated only as factors that may be considered, and provide little useful guidance about how they should be considered and what weight they should be given in establishing priorities.

RECOMMENDATIONS

Because the number of sites identified as high relative risk is in some cases larger than the number of sites that can be addressed with current DERA funding, the Department should assure itself (and be able to provide assurance to Congress and the public) that it is expeditiously

¹⁶ The Federal Facilities Environmental Restoration Dialogue Committee, *Final Report: Consensus Principles and Recommendations for Improving Federal Facility Cleanup*, April, 1996.

Figure 4**PRIORITY SETTING FACTORS RECOGNIZED BY THE
FEDERAL FACILITIES ENVIRONMENTAL RESTORATION DIALOGUE COMMITTEE**

Thus, while the Committee believes the comparison of human health and environmental risk and risk reduction potential is appropriate in setting priorities for federal facility cleanups, they are not the only factors, and risk must be viewed in the context of other social values, environmental goals, and economic benefits. Some of the other factors that should be considered in setting priorities for federal facility environmental cleanup include, but are not limited to:

- a) cultural, social, and economic factors, including environmental justice considerations;
- b) potential or future use of the facility, its effect on the local communities' economy, vitality, livability and environmental quality;
- c) the ecological impacts of the contamination and the proposed action to address it (in those instances where protection of the environment is not used as the primary basis for establishing cleanup funding priorities);
- d) intrinsic and future value of affected resources (e.g., groundwater and fisheries);
- e) pragmatic considerations such as availability and continuity of skilled workers, labs, and cleanup contractors to complete the activity or the feasibility of carrying out the activity in relation to other activities at the facility (i.e., capacity and work flow logic), or both;
- f) the overall cost and cost effectiveness of a proposed activity and especially the relative risk reduction value obtained by the proposed expenditure;
- g) making land available for other uses, recognizing land uses may change over time;
- h) the importance of reducing infrastructure costs (e.g., \$300 million is spent each year to monitor tanks at Hanford and \$130 million is spent each year at Rocky Flats to safeguard special nuclear material);
- i) the availability of new or innovative technologies that might accelerate or improve the ability to achieve a permanent remedy;
- j) Native American treaties, statutory rights (e.g., American Indian Religious Freedom Act), and trust responsibilities;
- k) regulatory requirements and the acceptability of the proposed action to regulators and other stakeholders;
- l) supporting accomplishment of other high priority agency objectives;
- m) life-cycle costs; and
- n) actual and anticipated funding levels.

These, as well as other factors that emerge should be considered by all key decision makers.

(Ref: *Final Report: Consensus Principles and Recommendations for Improving Federal Facilities Cleanup*, April 1996, pps 25-27)

addressing all the “top priority” sites. In most cases these will be the sites generating the highest risks, although other factors may also contribute to establishing a high priority.

The first need is to be sure that the sites creating the highest risks are being addressed in a deliberate, expedited fashion. This could be accomplished by establishing a “high-high” relative risk category or by analyzing the existing information for high relative risk sites to assure that those that might most reasonably be considered to have the highest relative risk are being addressed.¹⁷

The Department should also adopt a consistent set of factors other than relative risk that can be used in setting priorities. Although it is commonly done in practice, establishing a process for combining diverse factors in setting priorities can generate controversy.¹⁸ Probably the most reasonable approach would be to identify factors that could be used to increase a site’s cleanup priority, regardless of its relative risk. Some factors might increase the priority significantly, others less so. Avoid treating all factors as equal, for doing so eliminates the utility of a priority setting system. OSD need not collect information about how these priority factors are actually applied. The emphasis in this recommendation is on providing better guidance that is consistent across the Department, not on generating more information requests.

¹⁷ For instance, those sites having significant receptor, migration, and contaminant hazard factors, or those sites with moderate or significant contaminant hazard factors and significant receptor or migration factors, or those sites located in counties with a high population density and having significant migration or receptor factors with moderate or significant contaminant hazard factors.

¹⁸ Controversy is often stimulated by systems that explicitly attempt to identify items that are of lower priority. A Blue Ribbon Panel member sensitive to this issue suggested that such controversy be avoided by retaining the basic priority setting system established by RRSEs, and identifying factors that can be used to increase a site’s priority within this structure. We support this suggestion.

OSD should issue guidance defining the priority setting factors and how they should be used. All the Components should consider the same factors, but the priority setting process should be flexible enough to allow installations to respond efficiently to their particular problems.

DISCUSSION

Clean Sites believes that it is important to have an explicit set of priority setting factors which applies consistently throughout the DERP. In our interviews, we perceived that, except for some notable exceptions, it would probably not be difficult to reach agreement on what the priority setting factors should be.¹⁹

We recognize that the Federal Facilities Environmental Restoration Dialogue Committee agreement imposes some constraints on what should be considered in setting program priorities. However, the Committee's agreement generally incorporates the appropriate factors, and we believe that the Committee's factors could be converted into a meaningful priority setting framework if they were interpreted in a manner which is more useful to the Department's management and budgeting process.

COMMUNICATION WITHIN THE DEPARTMENT

As indicated in the introduction to this report, the DERP embodies a number of characteristics that make good communication within the Department both very important and very difficult. We investigated communication in two directions:

- **Vertical Communication:** Communication up and down the DERP management hierarchy from the Office of the Secretary to the Remedial Project Manager (RPM) in the field.

¹⁹ One notable exception, for instance, would be the hostility towards using relative risk as the primary priority setting factor exhibited by some staff and community representatives.

- **Horizontal Communication:** Communication among and between peers within sub-units, within Components, among Components, with other federal agencies, and outside government.

At the top of the management hierarchy the communications process appears to be substantial and efficient. Monthly meetings of the "Cleanup Committee" allow OSD and the Components' senior program managers to exchange information, identify issues, and address problems. Meetings of the Defense Environmental Restoration Task Force, established under the BRAC program, and other inter-agency coordination efforts, allow the Department to do the same with other relevant agencies. These formal processes are supplemented by frequent, less formal, communications.

Below the top management levels, the formal communication process depends more on written guidance documents and *ad hoc* meetings. All three services do hold one or more program meetings during the year to promote communications between the senior staff and the middle managers. Some RPMs are also included in these meetings.

Otherwise, the established vertical communications process is generally slow and uncertain. Preparing written guidance tends to be time consuming and resource intensive, and there is substantial delay -- sometimes measured in years -- between the time that OSD issues a new policy, and the time when that policy is incorporated in the written guidance prepared by the individual Components or sub-units. By the time the document is available, the policies that it incorporates may well have been modified. People at the top of the hierarchy are often unsure whether their communications are reaching the bottom (often they are not) and what policies are actually being implemented and how. People in the field often have little idea where directives, messages, or policies originate. To them the vertical communications process is largely opaque. They also perceive the information flow to be primarily upwards, and feel that they receive very little response to the information they provide.²⁰

²⁰ On the other hand, many of the individuals we surveyed expressed little concern about the lack of timely guidance. They often thought they did not need it and were better off without it,

There are exceptions to these general observations. Process guidance (for example instructions on how a budget submission is to be prepared) generally is communicated relatively quickly. Even if the official guidance is not transmitted, the information is or the staff knows where they can find it.

Some staff, particularly if they have been in the DERP for several years, have successfully established very efficient informal communications channels separate from the formal communication processes. For instance, at the beginning of the FY 1997 fiscal year, there was a substantial delay and associated uncertainty about when budgeted funds were actually going to be allocated to the installations. During this period, some field staff we were interviewing were aware of decisions regarding this issue within an hour or two of when they were made. These informal systems, however, appeared most common in the mid-Atlantic region where the staff had more interaction with the headquarters staff.

Not surprisingly, vertical and horizontal communications also appeared to be better where program managers were co-located (e.g. in the Navy's regional commands or at the Army Environmental Center).

Except in these instances, horizontal communications at the lower levels also appear to be very limited -- even within sub-units. Very little communication occurs between RPMs or middle managers in different Components, even when they are working on installations that are near one another. This means that RPMs in the different services have limited opportunity to learn from one another's experience, or to ensure that the different Components are implementing similar policies in the same region. Similarly, there is limited communication with peers outside the Department.²¹

and were confident that they could informally obtain whatever guidance they did need and want.

²¹ Most RPMs do, of course, have substantial interaction with the regulators and the community. These issues are addressed in the section of the report on cooperation.

Finally, some RPMs feel they are suffering from information overload and observe that they could spend all of their time reading guidance documents, newsletters, magazines, etc. Yet they often have difficulty finding the right piece of information when they need it. For instance, many RPMs have expressed a need for access to concise but comprehensive information on lessons learned from the use of innovative technologies. Such information does exist, but the RPMs often do not have ready access to it. For instance, several interagency programs such as the Federal Remedial Technology Roundtable provide such information electronically, but much of the staff working on the DERP have no easy access to the Internet.²²

RECOMMENDATIONS

With respect to the more general communications problem, OSD and the individual Components should explore the possibility of converting the primary means of communication to an electronic medium. A good Internet or other electronic communications system would appear to be the most efficient and effective means of solving the program's communications problems.

The Department has the beginnings of such a system in DENIX, but it is not fulfilling these communications needs and appears to be used relatively infrequently. The Department should consider the feasibility of substantially upgrading the DENIX system to make it the primary means of program communication and access to information. Annex A to this section lists a series of specific modifications that should be considered.

If the Department decides to make a shift to a primarily electronic communication system, we recommend that:

²² The General Accounting Office (GAO) publishes a list of federal web sites which includes many of these sites, but the GAO list is not comprehensive. See General Accounting Office, "World Wide Web Sites Reported by Federal Organizations", Report GAO/GCD-97-86S, 1997.

- Instead of attempting to update entire policy manuals on an annual basis, the updates should be made to specific parts of the policy guidance on an as needed basis (following the principle of the 'fewer changes the better'). With an electronic communications system, the entire staff can be notified automatically as soon as any modification is made, and anyone reading the document can easily see what changes have been made and when.
- To improve vertical communications, OSD consider broadcasting a weekly E-Mail "Friday Letter" containing a paragraph or two indicating what is going on, what OSD is doing for the program, what the Department is concluding from the information people are sending up, etc.
- OSD and the Components consider inviting all Environmental Restoration Staff to E-mail questions and suggestions to the DERP managers (in both OSD and the Components) who should then respond to these messages.
- The electronic system contain issue-specific list servers (in the non-public portion of the system) so that staff members at all levels in all the Components can ask one another questions and exchange information.

Steps that the Components should take to improve horizontal communication, regardless of whether an electronics communication system is established, include:

- Increasing the number of RPMs invited to Component program review conferences.
- Inviting representatives from other Components to attend and make presentations at Component program review conferences.

- Making greater use of work groups (both across sub-units and across Components) to address policy and procedural issues. Include staff outside of the Washington area in workgroups.

DISCUSSION

The inadequacies of internal program communication was one of the consistent observations we obtained from field level staff. The characteristics of the DERP -- large numbers of widely dispersed individuals needing rapid information on a wide variety of issues -- make electronics communication an obvious answer.

However, improving the internal communications system along the lines we recommend will not be easy. There are technical problems, cultural problems, and management problems.

Many of the field staff do not have the technical capacity (i.e. adequate computers and modems) to access and make efficient use of electronic communications systems. Some installations are still in the stage of developing simple E-mail systems operating through central connections. Some Components and sub-units are also unwilling to allow DERP funds to be used for the acquisition of computers and computer software. However, the costs of making the necessary upgrades should not be significant. Computers adequate to provide Internet or other electronic access currently cost less than \$1,500. Even if the DERP had to acquire 1000 such units, the total cost would be only \$1.5 million. This amount could be saved by a slightly better decision on a single project.

Even with the right equipment, however, there are cultural barriers to shifting from a traditional paper based communications system to an electronic system. Staff unfamiliar with electronics communication will have to be trained in its use. Documents will have to be prepared in a coherent electronic format.

Shifting to an electronics format -- particularly one that is based on the Internet -- can raise management concerns about the staff wasting time "playing" on the Internet. This is particularly a concern where the staff is widely dispersed, not closely supervised, and working in jobs where there is no clear measure of productivity -- all characteristics of the Environmental Restoration staff. It is a problem in the private sector, and it is bound to occur in government offices as well. Although some controls could probably be built into a DoD system, the primary approach ought to be to trust the staff to act professionally. If you cannot trust them to spend their own time wisely, how can you trust them to spend billions of dollars of government tax money?.

In spite of these problems, we believe that developing a Department wide, efficient electronic communications system would result in significant improvements in communication and productivity. For instance, having technical and policy information available electronically with a good search engine would make it much more accessible -- and accessible much sooner -- than publishing additional information materials and newsletters.

EXTERNAL COMMUNICATIONS

Most of our analysis was focused on internal communications, but the staff interviews also raised some questions about external communications. Many of these are addressed in the section of this report on cooperation. One other question that was raised concerned the Annual Report to Congress.

The Annual Report has become steadily longer, more detailed, more complex, and fancier over the past decade. Some of the individuals we interviewed questioned who the audience is and whether anyone reads it.²³ Middle and upper managers frequently blamed the report for much of the information and other administrative demands that OSD imposes on the DERP staff.

²³ Interestingly, one of the managers who most strongly questioned the value of and resources devoted to the Department's Annual Report went on to produce the Component's own annual report that was proportionally more detailed and longer than the Department's report.

In addition, reports issued during the 1980s contained many inconsistencies at both the program and installation level. However, whenever we asked RPMs whether the detailed information about their installation contained in the 1995 report was accurate, they responded that it was.

The complaints and questions asked about the annual report are common with respect to any annual report. In our view, the 1995 report is a good product, and the level of detail is appropriate given that most people referencing it will be looking for detailed information about individual installations.²⁴ It is always useful, however, to question the amount of effort and resources devoted to producing such a document. We also recognize that Congressional requirements determine what information is included in the report and that these requirements have a tendency to expand, not contract.

RECOMMENDATIONS

To the extent Congress allows, stabilize the content and production of the report. Making it fancier or including more analyses and examples of success is unlikely to make it more useful.

OSD might consider interviewing Congressional staff and members (who are presumably the primary audience for the report) concerning how it could be made most useful and whether all of the existing information and detail is necessary. This could be done through individual interviews or a focus group.

²⁴ Curiously, however, neither the 1995 or 1996 Annual Report includes explicit statements of the goals of the BRAC and DERP programs or depictions of the MOMs adopted for these programs. It would seem reasonable for the Department to provide to Congress and the public the same information it is using itself regarding what the program is attempting to achieve and how it is progressing in those attempts.

DISCUSSION

The current Annual Report is a good product, and presumably its production will become less expensive as it becomes more routine. It appears to include the appropriate level of information for members of Congress who want to know how the overall program is doing but are particularly interested about progress at sites in the Districts they represent. The fact that the report is required under law also makes it difficult to abolish it. Although several people interviewed mentioned the Annual Report, it was not considered to be a particularly important issue by most of the staff members we interviewed.

It is also worth noting that the public side of DENIX, although somewhat uneven in content, is very professionally done and is a good public communications tool for the Department.

Annex A

DENIX Upgrade²⁵

DENIX (the Defense Environmental Network and Information eXchange) is a world wide web site (<http://denix.cecer.army.mil/denix/denix.html>) and bulletin board which has both public and restricted domains. Although the public portion is reasonably well designed, the site's content is uneven, it contains limited substantive information, and has limited input from, and few links to, other DoD sites. For these reasons, because many DoD Environmental Restoration staff members lack adequate electronic capacity for accessing the site (or the associated bulletin board), and those that are able to access it feel that it is awkward and difficult to use, this system is not currently an integral part of the DERP management and information structure.

However, if the staff had adequate access capabilities, we believe a well designed and information rich web site/bulletin board could and should be the primary communication for the DERP. The Internet is a very effective mechanism for communicating to and among thousands of people geographically dispersed. It is also a very efficient mechanism for making substantial amounts of information readily available and easily searchable. These are two basic needs of the DERP. For this reason, we recommend:

- An upgraded DENIX should become the preferred method of communication throughout the DERP.²⁶ All DERP staff members should be given the hardware and software required and trained to access the system efficiently, send and receive

²⁵ Although many of these recommendations are very specific, they are intended to be indicative rather than definitive.

²⁶ Although some of the detailed recommendations (such as hyperlinks) require access to the Internet, many of the advantages could be realized through a non-Internet bulletin board.

E-mail messages, and download files. The system should be made so important and valuable that all staff members will be motivated to sign on at least daily.

- The Department appoint a users group made up of staff from all Components and all levels of the program to help design the upgrade to DENIX to ensure that it serves the Department's and the program's needs effectively.
- All the Components and sub-units should be part of DENIX at least by hyperlink. The home pages established by each of the Components should include text hyperlinks (or at least addresses) to all of the home pages established by the sub-units and installations.
- All OSD and Component guidance relating to both policies and procedures should be placed in the system for easy access by DERP staff, in a downloadable and searchable format. Any modifications made to these policies and procedures should be immediately apparent.
- Topic areas should be established within the system. Each topic area would include at least four elements: 1) copies of all laws and regulations related to the topic, 2) copies of all OSD, Component, and regulatory guidance related to that topic, 3) information documents and hyperlinks to other sources of information related to that topic, and 4) a list server with message archives for DERP staff (and possibly regulatory staff and RAB members) to exchange information, ask questions, etc. about the topic area. Each topic area should have an assigned moderator and subject area experts to ensure that it is well maintained and to answer (or attempt to obtain answers to) questions raised about the topic.
- Each topic area should have a search engine that does both whole text and keyword searches, and returns a listing of items under each of the four elements listed above (including the past 6 months of E-mail messages) that are relevant to the inquiry.

- A staff member signing on to the system should see a page listing all additions to the system made in the last 7 days plus all the unread messages posted to the lists for which the staff member has signed up.
- All levels in the DERP hierarchy should use DENIX/E-Mail in an effort to ensure timely and frequent communication and to at least partially resolve the issue that “nobody writes anything down”.
- DENIX should be used as a repository of “lessons learned” and cost and performance reports that are readily downloaded, easily searched, and in a common format.