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Final Draft REPORT

Superfund Subcommittee
of the
National Advisory Council for Environmental Policy and Technology

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Introduction from the Chair

In the spring of 2002, the Superfund Subcommittee of the National Advisory Council for Environmental Policy and Technology (NACEPT) was established to assist the U.S. Environmental Protection Agency (EPA) in identifying the future direction of the Superfund Program. Specifically, the EPA Administrator asked that the Subcommittee "spur a national dialogue on the role of the National Priorities List (NPL), mega sites, and program performance measures" … "in the context of other federal, state and tribal waste cleanup programs."

To accomplish this effort, the EPA Administrator appointed 32 senior-level individuals to the Superfund Subcommittee. The members reflected a wide range of interests and viewpoints from academia; business and industry; community and environmental advocacy groups; federal, state, local, and Tribal governments; and environmental justice, nongovernmental, and professional organizations. This breadth was intended to be reasonably representative of the concerns U.S. society has regarding reducing risks to human health and the environment at Superfund sites.

The Subcommittee worked actively and diligently to produce this report. They attended nine multi-day public meetings and more than 20 work group meetings that focused on specific issues, and participated in more than 100 work group telephone conference calls and a multitude of individual telephone calls to review and discuss additional specific issues, wording, and recommendations. Thus, this report reflects 22 months of intense discussion and deliberation.

The Subcommittee recognizes that the comments, advice, recommendations, and views presented in this report are part of a continuing national dialogue on the direction and effectiveness of this important Program. Although the report was drafted with EPA as the primary audience, many others should be interested in the report's recommendations, comments and views for improving Superfund, such as

Congress, other government entities, Tribes, representatives from environmental and citizen groups, industry, and the public.

While EPA provided the Subcommittee's charge, background information, and ongoing guidance, in each case, the Subcommittee carefully and independently reviewed and evaluated the material provided. In certain cases, the Subcommittee sought and considered additional information. Thus, the Subcommittee views this as an independent report.

The Subcommittee appreciates the detailed factual material provided by EPA, the Agency for Toxic Substances and Disease Registry, the National Institute of Environmental Health Sciences, the Subcommittee members, and the individual members of the public who provided specific comments. However, the report is the product of the Subcommittee members only. Individuals and organizations that provided information to the Subcommittee, including EPA personnel, did not participate in the decisions made by the Subcommittee regarding the final content of this report.

The material in the report resulted from detailed work group deliberations on specific topics and interactive discussions in open public meetings. I believe this report presents a fair and accurate summary of the findings and recommendations the Subcommittee wishes to forward to EPA. It contains findings and a number of recommendations that represent the consensus of all Subcommittee members. Where consensus was not reached, the report identifies the issues and presents the various points of view of the Subcommittee members. The consensus recommendations and different points of view are both provided to inform EPA as the Agency considers how best to adequately protect human health and the environment at actual and potential Superfund sites.

The report initially provides some background information about the work of the Subcommittee and the Superfund laws and regulations. Then three separate chapters address the three issues in the charge: use of the NPL, how to address mega sites, and approaches to measure the progress and performance of the Program. During the Subcommittee's deliberations, additional important related issues arose that the Subcommittee believes are important to the success of the Superfund Program and should receive serious consideration and discussion. These issues appear in the final chapter of this report.

The Subcommittee looks forward to EPA giving serious consideration to implementing the advice provided in this report. By doing so, the Agency will improve national efforts to reduce the human and environmental risks associated with Superfund sites.

In closing, I would like to thank the Subcommittee members for the dedication, intellectual contributions, and extensive commitment of time and personal energy they contributed to the deliberations of the Subcommittee and to this report. This type of work is not easy, and the issues are complex. The members fulfilled their charge extremely well and have done so professionally and positively. It has been a pleasure working with them and working with the many individuals from EPA and other organizations who provided the Subcommittee with the rich material needed to complete its task.

Sincerely, March 2004

Raymond C. Loehr, Chair

NACEPT Superfund Subcommittee

Executive Summary

This report was prepared as a result of a request from the EPA Administrator to help identify the future direction of the Superfund Program. This effort was conducted by the Superfund Subcommittee of the EPA National Advisory Council for Environmental Policy and Technology over a period of 22 months. The Subcommittee first met in June 2002 and completed this final report in March 2004.

The Subcommittee was specifically asked to consider the role of the Superfund Program's National Priorities List (NPL), how best to address mega Superfund sites, and approaches that can be used to measure the Program's performance and progress. During the Subcommittee's deliberations, a number of additional important issues arose. These issues are identified and discussed in a separate section of this report.

Members of the Subcommittee consisted of 32 senior-level individuals from academia; business and industry; community and environmental advocacy groups; federal, state, local, and Tribal organizations; and environmental justice, nongovernmental and professional organizations. This breadth of interests and experience was intended to be representative of the interests of society concerned with the effectiveness of the Superfund Program.

In developing this report, the Subcommittee members worked to reach the greatest degree of consensus possible. Consensus was defined as "an outcome that everyone can live with," even though aspects of any particular finding and recommendation may not be the first choice of individual members. When consensus could not be reached, options and/or the range of views held by Subcommittee members are provided.

While this report was prepared with the assumption that EPA is its primary audience, many others should be interested in the report, such as Congress, other governmental

entities, environmental and community groups, tribes, industry and the public. The Subcommittee looks forward to EPA's, as well as the other interested parties' serious consideration of the report's discussions, views, advice and recommendations.

Because the issues addressed in this report are complex, have many important facets, and affect different parts of society in varying ways, they will be the focus of continuing dialogue. However, the goal of all parties interested in and affected by the Superfund Program is the need to reduce the risks to human health and the environment associated with Superfund sites. The Subcommittee trusts that the information and advice in this report will help the Agency and the nation achieve this goal.

This Executive Summary contains the Subcommittee's major recommendations, which represent the consensus of all Subcommittee members. The Subcommittee requests that readers carefully review the discussion and rationale provided after each recommendation so as to be better informed about the interactions, consideration of diverse views, and additional background information that led to each recommendation.

The report also contains the range of views on issues for which consensus recommendations and advice could not be obtained. On a number of issues, Subcommittee members held fundamentally different views. The Subcommittee urges readers to go beyond the major recommendations, and read the comments, logic, and differing views provided to sharpen the focus and dialogue concerning the effectiveness of the Superfund Program.

In addition to chapters providing background and introductory information, the report has three chapters that contain the Subcommittee recommendations on the three issues in EPA's charge (use of the NPL, mega sites, and performance measures) and a final chapter that contains recommendations on additional important issues discussed by the Subcommittee. The recommendations in these chapters should not be considered in

isolation; they are a package. To emphasize the interconnectedness of the Subcommittee's recommendations, they are grouped in this Executive Summary in terms of the following five major themes:

Spend Resources Wisely

There is not a likely funding scenario in which the resources – public or private – available for environmental cleanups will be unlimited. A consistent theme during the course of the Subcommittee's deliberations was the need for the Superfund Program to make wise use of limited resources by allocating funds appropriately, by optimizing the efficiency of administrative and other practices and by leveraging the capacity of other programs to stretch every dollar as far as it can go.

The Subcommittee makes six recommendations related to optimizing resources:

- EPA should direct a higher percentage of the Superfund budget towards actual on-the-ground, field cleanup activities at sites. (Recommendation 12.)

- EPA should use its understanding of other programs and relationships with key managers to optimize and leverage the use of any available resources these programs can contribute towards cleanup at NPL sites. (Recommendation 8.)

- To facilitate the process of directing a higher percentage of the Superfund budget towards cleanup, EPA should commission a neutral, independent, comprehensive audit of the Superfund Program budget to document how funds are being expended, areas where expenditures are growing or declining on a percentage basis, and opportunities for increased efficiencies. (Recommendation 13.)

- EPA should explore the experience of other agencies and the private sector with cost-saving contract reforms. (Recommendation 14.)

- EPA should apply a consistent set of factors to decisions about how to divide Superfund money among remedial actions at NPL sites. (Recommendation 11.)

- The Subcommittee recommends a limited increase in the annual appropriation to the Superfund Program that should be used for fund-lead remedial actions and orphan shares of remedial actions at NPL sites (Chapter VI)

Increase the Transparency and Rigor of EPA Decision Making

EPA has the responsibility to make difficult choices about site clean up. If a site is listed on the NPL, choices about remedy selection and implementation are made in the context of the open, public process associated with NPL cleanups. Choices about how many and what types of sites to list on the NPL and choices about which NPL sites receive Superfund money to pay for detailed site evaluation and cleanup also need to be made in a transparent fashion.

Awareness and understanding of these difficult decisions serves EPA, officials at other levels of government, Tribal nations, affected communities, and potentially responsible parties. EPA must recommit to its existing coordinative practices and reach out to affected communities and potentially responsible parties in effective ways.

The Subcommittee makes four recommendations to increase the rigor and transparency of EPA decision making.

- EPA should apply a consistent set of factors to decisions which NPL-eligible sites to propose for listing. In addition, EPA should not use anticipated clean up costs

or the amount of funds available in the Superfund Program budget as factors in their decisions regarding whether to include or exclude sites from the NPL. (Recommendation 1.)

- EPA should evaluate opportunities to improve implementation of the hazard ranking system, the primary screening mechanism used to identify NPL-eligible sites. (Recommendation 4.)

- EPA should improve the information and data available on the Superfund Program and publish an annual report on Program progress, expenditures, anticipated costs, and sites remaining to be addressed. (Recommendation 5.)

- EPA should communicate decisions not to propose sites for NPL listing more specifically and more openly. (Recommendation 6.)

Expand Efforts at Coordination and Collaboration

The Subcommittee's belief that EPA must coordinate effectively with a wide range of partners in order for the Superfund Program to be effective was a theme that appeared throughout its discussions and deliberations. Decisions about how to best address a contaminated site are site-and community-specific. No two sites or communities present the same set of challenges or imperatives. Increased coordination and collaboration will bring forward important information about releases and potential releases, the potential use of other environmental programs, and community-specific concerns and priorities. This information, and the involvement of stakeholders, will help EPA make better, more informed and inclusive, decisions about sites.

The Subcommittee debated the merits, strengths, and weaknesses of state environmental cleanup programs and other Federal programs, and members had very different views and

experiences. Despite these differences, in the end, the Subcommittee recognized that there may be cases where it makes sense for another program to work on a site – where the program has the authority and capacity (people and resources) to achieve a remedy that protects humans and the environment with meaningful public involvement. When these conditions can be met, the use of these "other" programs can help to preserve Superfund resources for the sites where they are most needed.

The Subcommittee makes five recommendations related to coordination and collaboration.

- EPA should, to a greater extent, coordinate and collaborate with state environmental agencies, local governments, and Tribal nations in identifying sites for consideration for the NPL and making listing decisions. (Recommendation 2.)

- EPA should reach out to other stakeholders, particularly affected communities and potentially responsible parties, earlier in the site assessment process before listing decisions are made. (Recommendation 3.)

- EPA should ensure that the availability of other programs to address all or portions of NPL-eligible sites is consistently evaluated during the listing process. To facilitate this process, the Agency should ensure it has adequate knowledge and understanding of the capabilities and applicability of other programs, develop relationships with key managers in other programs, and promote greater standardization of coordinating mechanisms, particularly for large, complex sites. (Recommendation 7.)

- EPA should continue its efforts to increase the capacities of state and Tribal environmental cleanup programs. (Recommendation 9.)

- EPA should amend its regulations to allow for technical assistance grants to be available to NPL-eligible sites that are not proposed for listing. (Recommendation 10.)

Expensive Cleanups Deserve Special Attention

In many ways, mega sites present the same types of challenges posed by other NPL sites, except that the high cost of mega site cleanups means that decisions about how to best address them have greater impacts on the Superfund budget. Subcommittee members had very divergent views about whether mega sites warranted a fundamentally different cleanup approach than that currently provided by the Superfund Program. These views are described briefly in chapter IV of the report. However, even in the context of these divergent views, the Subcommittee agreed that when mega sites are addressed by the Superfund Program, they warrant special attention. The Subcommittee makes two recommendations related to management of mega site clean ups.

- EPA should establish practices that result in mega sites receiving the necessary resources and attention from senior Agency managers, in particular by ensuring that these sites have experienced project managers who are surrounded by the support professionals needed, and by applying sustained, focused management attention to cleanup progress at mega sites. (Recommendation 13.)

- When making decisions about how to best address a large geographic area, EPA should consider a consistent set of factors. (Recommendation 14.)

Measure and Communicate Progress and Performance Comprehensively

It is an axiom that what is measured is done. This means that measurements of the progress and performance of the Superfund Program should illustrate the Program's core

purpose. Measures such as "construction complete", currently used by the Superfund Program, tell only part of the story. The Subcommittee makes three recommendations about improving measures of Program progress.

- EPA should apply a specific set of national priority measures to its national-level reporting requirements. (Recommendation 17)

- EPA should report a core set of data for all NPL sites using a performance profile to reflect progress in all aspects of site investigation and clean up. (Recommendation 18.)

- EPA should develop measures that assess the effectiveness of coordination with state and local governments, Tribal nations, and community stakeholders. (Recommendation 19.)

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List Of Acronyms

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I. Introduction

In July 2001, the Deputy Administrator of the U.S. Environmental Protection Agency (EPA) directed the development of an action plan to address the recommendation in the Resources for the Future report to Congress *Superfund's Future What Will It Cost*? regarding the future of the Superfund Program's National Priorities List (NPL). This recommendation called for the creation of a Superfund Subcommittee under the auspices of the National Advisory Council for Environmental Policy and Technology, an EPA advisory committee under the Federal Advisory Committee Act. This Subcommittee was established in June, 2002 to spur a national dialogue on the role of the NPL, Superfund mega sites, and Program performance measures in the context of other federal, state, and Tribal programs.

Members of the Subcommittee were senior-level individuals from academia; business and industry; community and environmental advocacy groups; federal, state, local, and Tribal governments; and environmental justice, nongovernmental, and professional organizations. (See Appendix A for a list of Subcommittee members.) This breadth of interests and experience was intended to be reasonably representative of the range of perspectives in society concerned with the effectiveness of the Superfund Program.

EPA's Charge to the Subcommittee

EPA's charge to the Subcommittee asked specifically for advice in three areas:

- **Determining the Role of the National Priorities List—**What should be the role of the NPL? For example, how should it be used in the context of other cleanup programs, who should be consulted with regard to determining the sites that are listed, and what types of sites should be listed?
- **Addressing Mega Sites—**How can EPA best address mega sites (defined as sites where total cleanup costs are expected to exceed $50 million)? For example,

should cost continue to be the determining factor when identifying mega sites, are there are viable alternatives for placing mega sites on the NPL and/or containing their costs, are there feasible and reasonable policy options for addressing these sites, and do mega sites have unique aspects that might require a different decision-making process for NPL listing?

- **Measuring Performance and Progress—**EPA did not ask specific questions regarding measuring the Superfund Program's progress or performance, but noted that the Agency expected to share new ideas it was formulating regarding measures and would seek the Subcommittee's feedback on those ideas.

After reviewing the EPA charge, the Subcommittee discussed and elaborated on the three major topics to incorporate additional issues of concern to members of the Subcommittee. The original charge and the modified charge accepted by the Subcommittee are included in Appendix B. In addition, the Subcommittee developed a work plan to guide the initial stages of its deliberations, which is presented in Appendix B.

The Deliberative Process

The Subcommittee met nine times between June 2002 and March 2004. The original term of the Subcommittee members was to be from May 2002 to December 2003. That term was extended to March 31, 2004, by Acting EPA Administrator Marianne Horinko to allow the Subcommittee adequate time to complete its discussions and deliberations and this final report. Between Subcommittee meetings, small working groups of Subcommittee members spent countless hours interacting via conference calls and in face-to-face meetings to continue deliberations and develop options and recommendations for consideration by the full Subcommittee. Thus, this report has resulted from continual, serious, and often intense discussion of these complex issues.

Public and *Ex Officio* Participation

EPA *ex officio* Subcommittee members participated in discussions at meetings and in conference calls to offer insight into the background and functioning of the Superfund Program, Agency operations, and policy related to the Program. Where appropriate, they provided insights into the practical implications of implementing recommendations being considered by the Subcommittee. The Agency also supported Subcommittee deliberations by making staff available to provide informational briefings and other materials to the Subcommittee. The Agency also provided professional facilitators who assisted the Subcommittee throughout its deliberations, including facilitating meetings, developing meeting summaries, and drafting the report (see Appendix __). EPA representatives did not participate in the Subcommittee's final decision making.

In accordance with the requirements of the Federal Advisory Committee Act, notices of full Subcommittee meetings were published in the *Federal Register*, and the meetings were open to the public. Opportunities for public comment were provided at each meeting, and the public comments are included in the meeting transcripts. A description of the Subcommittee process, including dates and locations of full Subcommittee meetings and lists of individuals who offered presentations to the Subcommittee or made comments, is included in Appendix __. Meeting agendas, transcripts, and other materials are available through the Superfund Docket [docket contact information]; reference Docket #SFUND 2002-0005.

The Consensus Process

In developing this report, Subcommittee members articulated and considered their views on many complex and inter-related issues. This final report is an integrated package that represents the Subcommittee's best effort to formulate consensus recommendations. The Subcommittee worked to reach the greatest degree of consensus possible among the wide range of views reflected in its membership. Consensus was defined as "an outcome that everyone can live with," though aspects of any particular finding or recommendation may not be the first choice of individual members. When consensus was not reached, the

report describes the range of views held by Subcommittee members. In some cases this may include a range of policy options for the Agency's consideration.

During the Subcommittee's deliberations, a number of additional important issues arose that were not directly addressed in the charge. Because the Subcommittee believes these issues are important to the success of the Superfund Program and should receive serious consideration and discussion, they are discussed in a separate chapter so that they are afforded the attention and recognition they merit.

The deliberations also revealed a range of views regarding the Program's current effectiveness and how considerations of risk should be incorporated into Program decision making. Although the members worked very hard to formulate consensus recommendations, their fundamental differences on several topics impeded consensus. In some cases, the Subcommittee chose not to include any recommendations on those topics, while in others, the Subcommittee chose to present a range of views.

Organization of the Report

The body of the report is organized as follows. Following this Introduction is a background section devoted to an overview of the critical background material that helped to shape the recommendations of the Subcommittee. The background material provides a brief overview of the NPL listing and cleanup processes, the composition of the NPL, and key budget data. Following the background are separate sections that address the three issues in the charge: use of the NPL (Section III), mega sites (Section IV), and measures of program progress and performance (Section V). A discussion of additional priority issues that warrant serious consideration and follow-up is included in Section VI. (Once the Subcommittee makes final decisions about what will be included in the appendix, additional elaboration will be added to address both what material is included and narrative about the Subcommittee's rationale for why.)

Background and Context for NPL / Mega Sites

This Chapter provides an introduction to the Superfund Program, including the site investigation and cleanup process, the status and composition of the current National Priorities List (NPL), and the Program budget. It is not intended to be a comprehensive or detailed description of the Superfund Program or law. Rather, it is intended to provide context for the Subcommittee recommendations and to assist readers who may be less familiar with the Superfund Program and its history.

Congress passed the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), more commonly known as Superfund, in 1980 to provide for clean up of releases of hazardous substances, contaminants and pollutants. The Superfund Program implements two basic types of cleanups: (1) remedial actions, which generally are long-term cleanup actions at sites listed on the NPL; and, (2) removal actions, which generally are shorter-term cleanups needed to mitigate more immediate threats at listed and non-listed sites. Remedial actions generally are designed to provide a permanent remedy and thus can take a considerable amount of time and money, depending on the nature of the contamination being addressed. Cleanups at NPL sites progress through several steps, investigation and study, remedy selection and design, and remedy implementation. Removal actions typically are limited to a 1-year effort and $2 million in expenditures.

Under CERCLA, EPA has the authority to clean up hazardous substance releases itself (typically by hiring environmental contractors to do the work in the field) or to compel responsible parties to perform clean up. CERCLA initially established a $1.6 billion trust fund, financed primarily by taxes on crude oil and certain chemicals, for EPA to implement the program and pay for clean ups. EPA's regulations provide that a site must be listed on the NPL in order to receive Superfund trust fund financing.

In 1986, Congress amended CERCLA with the Superfund Amendments and Reauthorization Act (SARA). The SARA amendments reinforced the importance of human health, community involvement, cooperation with state and local governments, and permanent clean up remedies.

The Superfund Program has over 3,000 full time equivalent staff (FTE), largely located in the ten EPA regional offices. Regional staff coordinate site assessments and investigations; make decisions about what sites need removal or remedial action; carry out site-related oversight, enforcement, community involvement and other activities; and oversee the work of EPA contractors hired to carry out site investigation and response activities financed by the Superfund Program. Regional staff also largely are responsible for coordination with officials in state and local governments and tribal nations. As described later in this Report, these officials are critical partners in successful implementation of the Superfund Program.

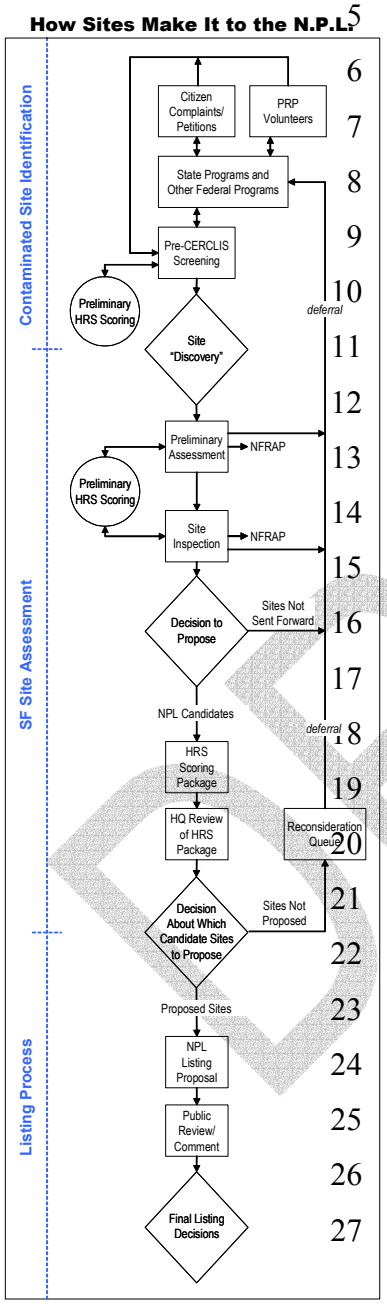
Staff at EPA headquarters are responsible for overall program coordination, management and development, and oversight of the regional staff. NPL listing decisions are also made at EPA headquarters, by the Assistant Administrator for the Office of Solid Waste and Emergency Response.

In fiscal year 2002, there were approximately 2,500 FTE in the regional offices and 644 FTE at EPA headquarters. In addition to funding staff in the Office of Solid Waste and Emergency Response, the Superfund Program budget funds staff and other activities in the Office of Enforcement and Compliance Assurance (OECA), the Office of Research and Development (ORD), the Office of Administration and Resources Management (OARM), and the Office of the Administrator.

In 1995, the taxing authority that was used to finance the Superfund trust fund expired. Although the fund continues to receive revenue from other sources, including cost

recoveries, interest from investments, fines, and penalties, since 1995 the Program has been increasingly funded through general appropriations.

How Sites Get Listed on the NPL



The Superfund process begins when a potential hazardous substance release site is reported to EPA, usually by a state environmental agency, but sometimes by local or tribal governments, individuals and community groups. When potential sites are reported, the EPA regional office, often in conjunction with a state environmental agency, carries out a pre-screening evaluation to determine whether initiation of the Superfund site assessment process is appropriate. This typically involves verifying that there is an indication that hazardous substances are present at the site. It generally also involves evaluation of whether the site is covered by EPA's Resource Conservation and Recovery Act (RCRA) program or state programs. When EPA determines that the Superfund site assessment process is warranted, the Agency enters information about the sites into the Comprehensive Environment Response, Compensation, and Liability Act Information System (or CERCLIS), the Agency's database of sites that may need action under Superfund, and the Superfund site assessment process begins. In FY 2003, EPA added more than 240 sites to CERCLIS.[1]

[1] Information provided by EPA from *eFACTS* on October 16, 2003.

The Superfund site assessment process is carried out largely by EPA regional offices, working with state environmental agencies and tribal governments. This process has a number of steps, each designed to send forward only the sites that warrant additional attention under Superfund. Sites might not undergo further assessment for a number of reasons, including a determination that it no further remedial action under CERCLA is planned (NRFAP); a determination that an assessment using the Hazard Ranking System (HRS) likely would not result in an HRS score of 28.5, the threshold for NPL eligibility; or referral of the site to another environmental cleanup program. Sites that are not screened out during the Superfund site assessment process and that have an HRS score of 28.5 or greater are considered "NPL eligible" sites.

From among the identified NPL eligible sites, EPA regional offices choose which sites to submit to EPA headquarters for possible addition to the NPL. Regions make these decisions by considering, in a qualitative sense, a variety of factors including the severity of contamination, the urgency of the problem, and the types of environment affected. EPA guidance[2] specifies that high priority should be given to the following types of sites:

- Current human exposure to hazardous substances, pollutants or contaminants;
- Documented contamination, especially at or above a health-based benchmark (SARA Section 118 requires that a site be considered a high priority where releases have resulted in closing drinking water wells or have contaminated a principal drinking water supply);
- Proximity to a large potentially affected human population;
- Documented contamination of a sensitive environment or fishery;
- State recommendation that the site be listed on the NPL; or,
- The Agency for Toxic Substances and Disease Registry has or is planning to issue a health advisory related to the site or to activities associated with the site.

[2] U.S. EPA *Guidance on Setting Priorities for NPL Candidate Sites*, OSWER Directive 9203.1-06, 1992.

EPA headquarters works with the regional offices during this process by evaluating HRS scoring for the site to ensure that only sites with technically and legally defensible scores of 28.5 or greater are sent forward, and by ensuring that Superfund Program guidance is properly applied. NPL-eligible sites that the regional offices identify as priorities are sent forward to headquarters for proposed addition to the NPL. Sites that the regions send forward are referred to as "NPL candidates" and represent a subset of NPL eligible sites.

Beginning in 2002, EPA established a new step in the Superfund site assessment process whereby the entire pool of NPL candidate sites submitted to headquarters by the regions undergoes an additional evaluation by a committee made up of regional and headquarters personnel. This group primarily considers risks to human health and the environment and the urgency of the need for response to further prioritize NPL candidate sites. It also considers program management factors, such as projected costs to the Superfund Program and timing of funding needs, maintaining a strong enforcement program, leveraging cleanups by others, land use potential, and state, tribal and community support for listing.

Those discussions are then considered by headquarters staff, who develop options for recommending NPL candidate sites to the Assistant Administrator for the Office of Solid Waste and Emergency Response (OSWER).

Superfund Alternative Sites

Some sites that are eligible for the NPL may not be listed and instead designated as a Superfund Alternative (SAS) site. EPA's goal for the SAS program is a process that results in PRP-lead cleanups equivalent to NPL sites, without actually listing the site on the NPL. Sites must meet the NCP criteria for listing (i.e., HRS of 28.5 or above), require long-term response (i.e., Remedial Action), and have fully viable, cooperative responsible parties. State and tribal involvement is similar to NPL sites, including consultation on the SAS designation, notice of enforcement actions, and remedy selection.

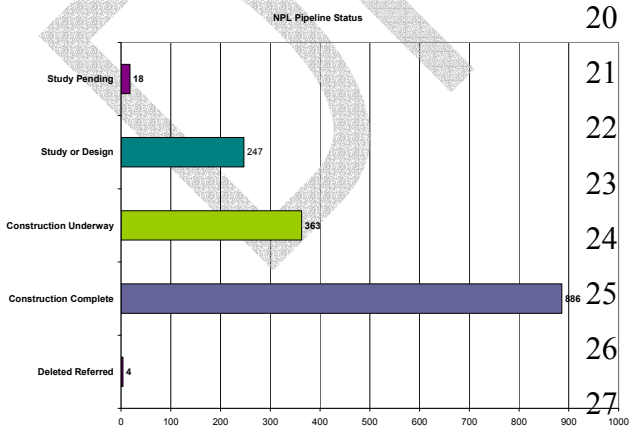
As of the end of FY 2003, there were 109 Superfund Alternative sites, accounting for a total expenditure from the Superfund program of approximately $227 million. These funds are primarily spent on removal actions (42%) and other costs associated with the early stages of the Superfund process, including site assessment and investigation, enforcement, and community involvement.

The Assistant Administrator makes the final decision about which sites to propose for NPL listing. Listing proposals are then published in the Federal Register for public review and comment. EPA considers all comments received during a 60-day comment period and then makes a final listing decision that is also published in the Federal Register. Historically, EPA has finalized the majority of listings that it proposes.

What Happens Once a Site is on the NPL

Once a site is listed on the NPL, the remedial–or clean up–process starts. The first step in the remedial process is a remedial investigation and feasibility study (RI/FS), during which a site is investigated to characterize the nature and extent of contamination and contaminant sources, to calculate the risks posed by such contamination, and to identify and evaluate remedial options. The culmination of the RI/FS is EPA's issuance of a Proposed Plan for remediation. After public review and comment on the Proposed Plan, a Record of Decision (ROD) is issued. The selected remedy is then designed (Remedial Design phase or RD) and implemented (Remedial Action phase or RA).

When physical construction of the remedy is complete, a site generally is identified as "construction complete." Currently, construction complete is the primary measure of program progress for sites on the NPL. After construction complete, a site enters the operation and maintenance (O&M) phase of cleanup, during which remedy implementation and monitoring continues. When remedial goals have been achieved, EPA may delete a site from the NPL, even though O&M continues. The bar chart to the left represents the pipeline status of sites on the NPL at the end of FY 2003. Sites that are proposed for the NPL are not represented in this chart.



Throughout the Superfund process, cleanup costs are paid for either directly through the Superfund Program or by potentially responsible parties. Orphan sites are those where EPA has been unable to identify a financially viable responsible party. At these sites all cleanup costs are initially borne by the Superfund Program, although, in some cases costs may be recovered later from responsible parties. More typically, cleanup costs are shared between PRPs and the Superfund Program. Even at sites where cleanup costs are funded entirely by the PRPs, the Superfund Program incurs costs associated with site oversight.

Current Composition of the NPL

After 23 years of Superfund implementation, EPA and its partners in state environmental agencies and tribal governments have identified over 45,000 sites for assessment under Superfund. The vast majority (nearly 75%) have been determined not to require remedial action under the Superfund Program.

At the end of FY 2003, there were a total of 1,572 sites on the NPL. The status of these sites is as follows:

- 54 sites (~3.5%) are proposed to the NPL, but listing is not yet finalized;
- 1,244 sites (~ 79%) are listed on the NPL; and
- 274 sites (~17.5%) have been deleted from the NPL. [3]

Almost half the sites on the NPL (716 or ~46%) were listed prior to 1986 and thus are considered pre-SARA (or teenager) sites.[4] For the last decade of the Program, additions to the NPL have outpaced deletions and the NPL has continued to grow, with an average of 28 new sites added each year. Deletions average 21 sites a year over the same time period.

Category of Sites on the NPL– Mega Sites

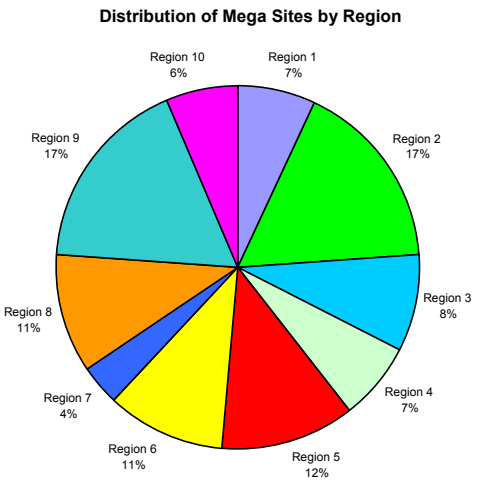
[3] Information provided by EPA from *eFACTS* on October 16, 2003.

[4] Pre-SARA refers to sites listed prior to the enactment of Superfund Amendment and Reauthorization Act, October 16, 1986. Number of sites provided by EPA on November 25, 2003.

Sites on the NPL are categorized in several ways. One categorization that has been used is to distinguish sites based on the expected costs of remediation. Large, complex, and costly sites have come to be referred to as "mega sites" — defined as sites where total cleanup costs (i.e., combined extramural, actual and planned removal and remedial action costs) are expected to equal or exceed $50 million incurred by either the Superfund program or by PRPs.[5]

Of the 1,518 final and deleted sites on the NPL at the end of FY 2003, EPA estimates that 142 of them are, or are likely to become mega sites.[6] Ninety-three, or 65%[7] of these mega sites are pre-SARA sites.

While mega sites make up a relatively small percentage by number of the NPL (<10%), they have important impacts on the Superfund budget. Sixty (60) mega sites are fund-lead or have orphan shares that will require funds directly from the Superfund program. The remaining sites are PRP-lead or are undetermined lead because not all construction projects at the site have yet begun. In the briefings provided to the Subcommittee, EPA management explained that in FY 2002, funding needs for eight large, complex sites accounted for approximately 40% of the money available that year for fund-lead remedial actions.



Mega sites are distributed across the country, with some in every region. The pie chart to the right contains information provided by EPA to

[5] For CERCLIS reporting purposes, as presented in OSWER Directive 9200.3-14-1G-Q (April 7, 2003), sites are defined as mega sites if any combination of remedial action costs, excluding long-term remedial actions, exceeds $50 million.
[6] Source: EPA list of 142 mega sites provide to Subcommittee on November 25, 2003; data current as of 10/15/03 from CERCLIS.
[7] Number of sites provided by EPA on November 25, 2003.

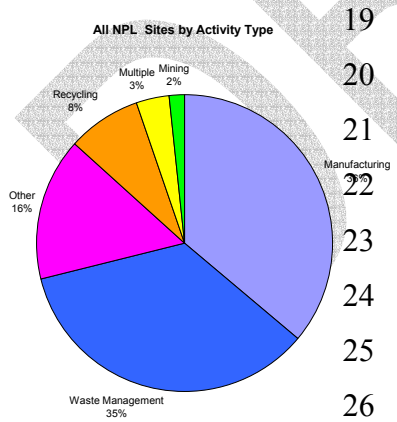
the Subcommittee[8] and shows the distribution of mega sites by EPA region.

Category of Sites on the NPL – Federal Facilities

Another way that EPA categorizes sites on the NPL is as federal or non-federal facilities. Federal facilities are sites owned and operated by federal agencies, such as the Departments of Defense and Energy, or the Department of the Interior. While federal facilities on the NPL fall under the regulatory structure of the Superfund law, cleanups at federal facilities are not usually funded out of the Superfund Program, but through other mechanisms such as direct appropriations to responsible agencies. Of the 1,572 sites on the NPL, 177 (6 proposed; 158 final; 13 deleted)[9] are federal facilities.[10] They include, among other things, abandoned mines, nuclear weapons productions plants, and federal landfills. The primary federal agencies responsible for the 177 federal facility NPL sites are the Department of Defense (80% of NPL federal facility sites) and the Department of Energy (12%).[11]

Category of Sites on the NPL – Industrial Type

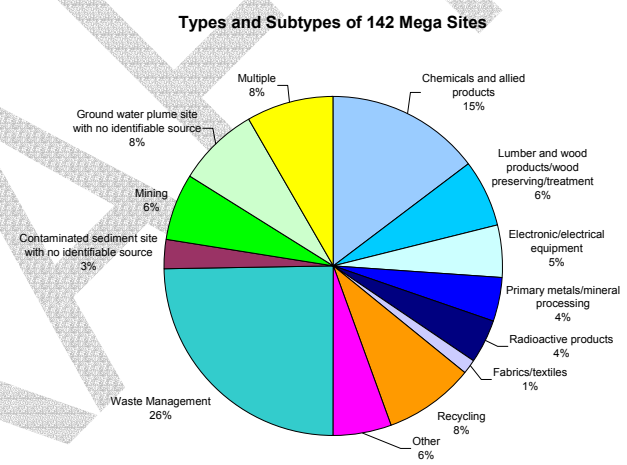
Sites on the NPL are also categorized by type of industrial facility or activity associated with the contamination. These sites can be categorized in terms of specific industrial sectors, such as manufacturing, waste management, and recycling, as well as a number of catch-all categories such as "multiple," which refers to sites where more than one activity caused the site to be listed, and "other," which includes groundwater and contaminated sediment sites with no identifiable source, military/ordnance production, dry cleaners, transportation, retail, and storage sites. More than



[8] Power Point presentation by Dr. Elizabeth Southerland on November 5, 2003; data as of 10/15/03.
[9] EPA's Federal Facilities Restoration and Reuse Office: *Program Facts for Fiscal Year 2003*, data from CERCLIS on 10/14/2003, http://www.epa.gov/swerffrr/documents/ffcc.htm
[10] Facilities owned or operated by a department, agency or instrumentality of the U.S.
[11] See http://www.epa.gov/swerffrr/documents/ffcc.htm

two-thirds of all NPL sites fall into the two main categories of manufacturing and waste management. The pie chart to the left shows the distribution of all 1,572 sites on the NPL in FY 2003 by site type category.[12]

Certain types of sites were identified by EPA in the charge given the Subcommittee as warranting consideration, specifically mining and sediment sites. The pie chart to the right represents the distribution of mega sites across site type classifications, including subtypes within the manufacturing category. Also noted are two other types of sites: groundwater plume sites with no identifiable source and contaminated sediment sites with no identifiable source (captured under "Other" in the previous chart). There is no significant distinction between site types for mega sites compared to site types for all NPL sites. In any given category, mega sites represent a relatively small percentage of the total sites on the NPL. Similar to the NPL as a whole, the categories of waste management and manufacturing represent the largest percentage of mega sites. The subtypes for manufacturing total 35%.[13]



Categories Given Special Consideration – Mining and Sediments

EPA has acknowledged that mining sites pose special challenges to the Superfund Program and has established a program component (Abandoned Mine Lands Team or AMLT) that examines mining sites in a special way that provides a consistent framework for addressing both active and abandoned hard rock mining sites. While the AMLT is a work in-progress, it has a preliminary strategy aimed at reducing environmental liabilities

[12] Source: Data provided by EPA from Superfund eFacts database, as of October 16, 2003.
[13] Data provided by EPA on November 25, 2003; data as of end of FY 2003.

through both regulatory and non-regulatory activities at active mines sites and at consideration of various remediation options at abandoned mine sites on the NPL as well as sites outside the NPL.

The AMLT is in the process of finalizing and distributing for internal review a web site and reference notebook specific to abandoned mine lands contamination problems. Both are intended to help clarify the policy and technical issues related abandoned mines.

Similarly, because many Superfund cleanups address contaminated sediments as one component of cleanup, and to ensure scientifically sound and nationally consistent decisions related to contaminated sediments, in 2002, EPA issued eleven principles for managing contaminated sediment risks [14]and draft guidance[15] to provide technical and policy guidance to assist in making risk management decisions for contaminated sediment sites being considered for CERLCA actions.

The guidance related to the eleven management principles also established a new headquarter consultation process for all CERCLA and federal-lead RCRA sites where a significant sediment cleanup is expected.. In general, these management principles are designed to support site-specific risk-based remedial action decisions using an iterative process that encourages early and meaningful involvement of affected stakeholders.

The consultation process is a two-tiered procedure where Tier 1 sites are those for which the sediment action will address more than 10,000 cubic yards or more than five acres of contaminated sediment, and Tier 2 sites are very large, controversial, or complex sediment sites. Tier 2 sites are overseen by a technical advisory group (Contaminated Sediments Technical Advisory Group – CSTAG) composed of staff from each region (10) plus five headquarter-level staff to help site managers appropriately manage remedy

[14] OSWER Directive 9285.6-08
[15] OSWER 9355.0-85

selection for contaminated sediments throughout the Superfund cleanup process in accordance with the eleven risk management principles.

There are currently seven NPL sites which EPA has identified as warranting CSTAG review[16]. Of these seven sites, three are mega sites and one has been proposed to the NPL but does not yet have a final listing.

Cost of Cleanup

Accurate estimates for cleanup costs are very difficult to obtain and predict for several reasons. One is that EPA only tracks costs once a remedy selection has been made. Another is that EPA only has cleanup cost information for sites or portions of sites where cleanup is paid for using Superfund Program funds. PRPs are not obligated to disclose the amount they spend on cleanup.

In the FY 2000 appropriations conference report, Congress asked Resources for the Future (RFF) to conduct an independent study to estimate the cost of implementing the Superfund Program through FY 2009. Completed in 2001, the resultant report was a comprehensive evaluation of past Superfund Program expenditures and estimates of future costs. The study, *Superfund's Future: What Will it Cost,* predicted no appreciable decline in the costs of the Superfund Program for the next decade.[17]

Using available data from a several year period, and making certain assumptions about the number of operable units,[18] the RFF analysis concluded that the average cost per site for cleanup was $12 million for non-mega sites and $140 million for mega sites. A relatively small number of sites, even if not mega sites, that require large infusions of

[16] See http://www.ep.gov/superfund/resources/sediment/cstag_sites.htm

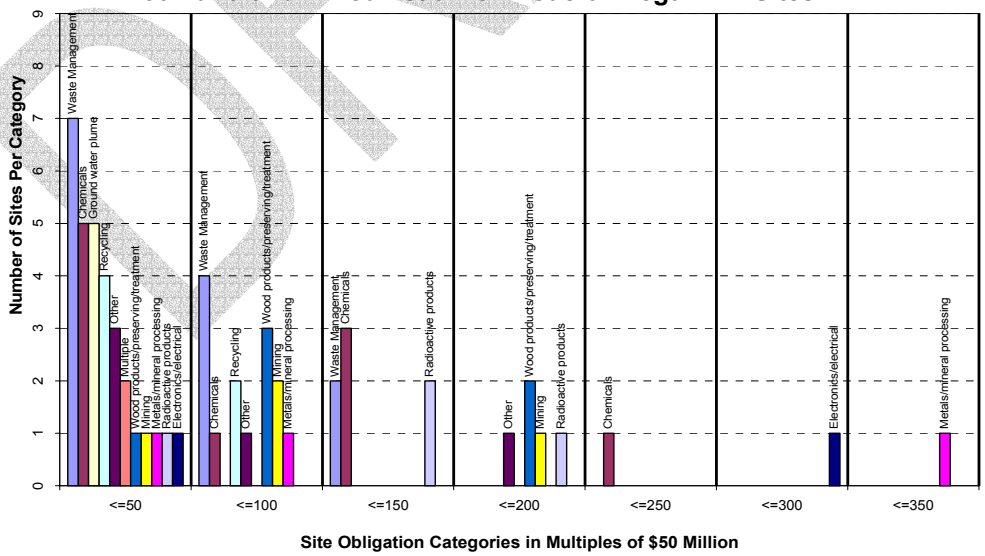
[17] *Superfund's Future: What Will It Cost?,* Probst, Katherine N. and Konisky, David M., et al, 2001, p. xxi-xxiv.

[18] Operable units are a distinct cleanup project at a site based on remedy, geography, or path of exposure. The RFF study assumed 3.8 operable units for mega sites; 1.6 for non-mega sites. See p. 87.

remedial action dollars in any given year can skew these average costs and also can cause a significant strain on the Superfund cleanup budget.

Because mega sites in particular can impact the overall Superfund Program remedial action budget, and because some mega sites are expected to cost into the hundreds of millions of dollars, the Subcommittee focused special attention on the distribution of cleanup costs associated with the 60 mega sites on the NPL at which cleanup activities are entirely or partially funded by the Superfund Program. EPA provided distribution data on actual and planned remedy construction obligations in increments of $50 million for these 60 sites, which is displayed in the bar chart below. At roughly half (31) of the sites, EPA's actual and planned remedy construction obligations fall under the $50 million threshold for mega sites. (These are most likely all mixed funding sites, where both EPA and PRPs are paying cleanup costs.) The remaining 29 sites have costs estimated as between $50 million and $350 million. EPA does not have construction obligation data for the remaining 82 mega sites on the NPL because these sites are PRP-lead and responsible parties do not report cleanup cost information to EPA, or because not all construction projects have yet begun at a site.

Distribution of Actual/Planned Construction Obligations for 60 Fund and Mixed Lead Non-Federal Mega-NPL Sites



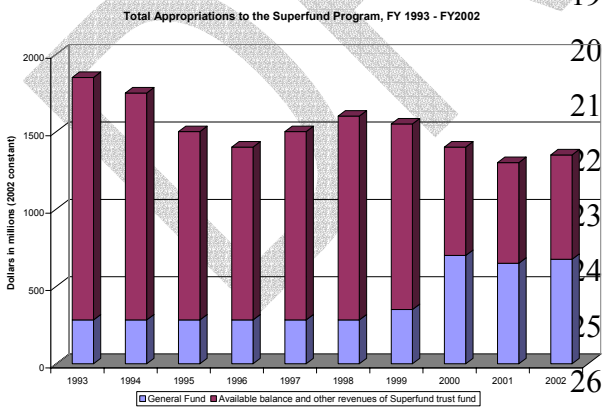
Planned/Actual Obligations include only resources (including appropriated funds and resources recovered from private parties) that EPA is, or will use, to construct remedies, but does not include costs incurred by private parties to conduct response work.

Superfund Budget

Appropriations

Money appropriated to the Superfund Program from 1993 to 2002 (in constant 2002 dollars) has diminished. According to the July 2003 GAO report to Congress on the financial status of the Superfund Program, the Program's total annual appropriations (in constant 2002 dollars) has decreased from a high of approximately $1.9 billion in FY 1993 to a relatively constant annual budget of $1.3 billion in recent years.[19] Some of this decrease represents Congressional decisions to separately appropriate resources to other agencies and programs that were formerly included in the Superfund Program budget, including ATSDR, NIEHS, and the brownfields program in 2002. Since FY 2001, Congress separately appropriated resources to ATSDR and NIEHS; since FY 2003, brownfields has been a separate appropriation.[20] Subtracting these funds would result in an overall decrease in the Superfund budget of approximately $42.5 million per year over the past decade.

The total annual appropriation (including congressional earmarks) to the Superfund Program from 1993 to 2002 is shown in the chart below, along with the relative percentage of the source of the appropriation, which is either trust fund or general fund monies.[21] Originally, the Superfund trust fund was funded through excise taxes on crude oil and petroleum products and sales of certain chemicals, and the environmental tax on corporations. These taxes were allowed to lapse in 1995 by Congress. Since then, the program



[19] GAO, *SUPERFUND PROGRAM Current Status and Future Fiscal Challenges* (July 2003), p 11.
[20] Data on history of Congressional appropriations for the Superfund program 1999–2003 provided by EPA September 2003.
[21] GAO-03-850 Report to Congress: *Superfund Program – Current Status and Future Fiscal Challenges*, July 2003, pp 9-11.

has been increasingly funded with general fund monies.

Expenditures

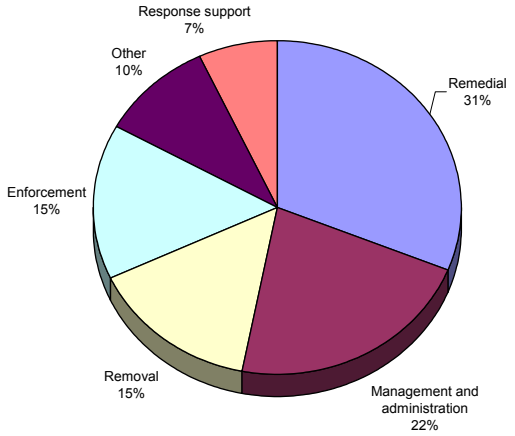
Funds allocated to the Superfund Program are used for specific types of expenditures, which can broadly be divided into programmatic and administrative categories. Administrative costs include staff payroll costs, facilities, equipment, supplies, and non-site travel and are roughly equivalent to the term "intramural" costs, which is how the RFF study coded them. Programmatic costs are those costs more directly related to the mission of the program, and include site-specific cleanup activities, site assessment and the NPL listing work, investigations and remedy design, state and community participation and program management and policy development. The site-specific, as well as state and community involvement costs tend to be external to EPA and are roughly equivalent to the term "extramural" costs, which is how RFF coded such costs in its study. [22]

Expenditures, as opposed to appropriations, represent the programmatic and administrative resources EPA has actually paid out. Because Superfund projects are often multi-year endeavors, resources appropriated in a given year may be paid out over multiple years.

Over the past ten years, remedial actions and related site-specific work such as site investigations, remedy design, community involvement, post-construction monitoring, and oversight of responsible parties represent the largest portion of the resources EPA has spent in the Superfund Program, approximately 31% in FY 2002. In general, program management activities such as policy development, emergency preparedness activities, contract and information management, training, and general support have consumed the second largest share of the budget, approximately 22% in FY 2002. The pie chart to the

[22] RFF study, p.44

Figure 5: EPA's Superfund Program Expenditures, Fiscal Year 2002



left, from GAO's 2002 report on the Superfund Program, illustrates EPA's Superfund program expenditures in FY 2002.[23]

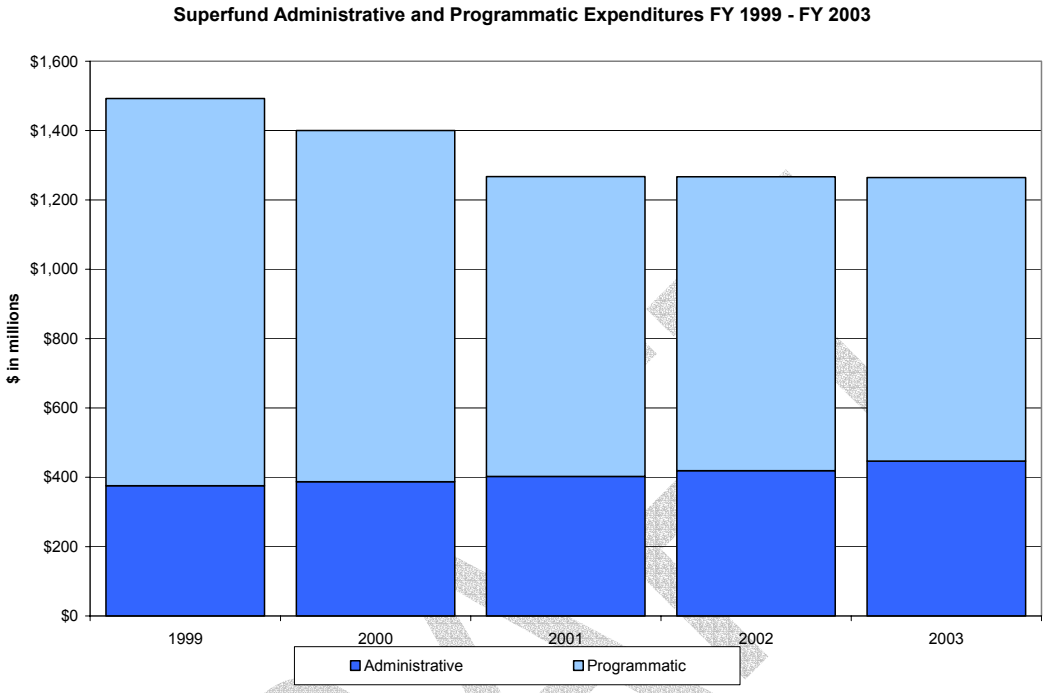
Overall, the percent of the Superfund Program expenditures categorized as programmatic costs has declined somewhat in recent years, from nearly 75% of all expenditures (approximately $1.1 billion of a $1.5 billion budget) in FY 1999 to 65% in FY 2003 ($818 million of a $1.3 billion budget). Approximately 2% of this decline is attributed to shifting $130 million for ATSDR and NIEHS from the Superfund appropriation to separate appropriations beginning in FY 2001. The bar chart below indicates this decline over time.[24]

A significant reason that administrative costs have increased over time relative to programmatic costs is that the Superfund budget generally is not increased yearly to account for cost of living salary adjustments (COLAs) and other salary increases for federal employees, or for multi-year inflation related to rent and utilities. EPA typically

[23] Data provided to GAO by EPA, which also determined which activities to include in each category. See GAO, *SUPERFUND PROGRAM Current Status and Future Fiscal Challenges* (July 2003), p 13. Total program expenditures for FY 2002 were $1.34 billion. *Remedial* costs include investigations, remedy design, community involvement, construction, post-construction, and oversight of responsible parties. *Removal* costs include assessments, investigations, removal construction, and oversight. *Response support* includes site-specific costs related to technical assistance, technology innovation, contract management, records management, and general support to other organizations through grants, interagency and/or cooperative agreements. *Management and administration* includes non-site specific costs such as program management and budget, policy development and implementations, emergency preparedness activity, contract and information management, training, and general support. *Enforcement* costs include searching for and negotiating agreements with responsible parties. *Other* includes site assessment, federal facilities, and Brownfields, which is no longer funded through a Superfund appropriation as of FY 2003.

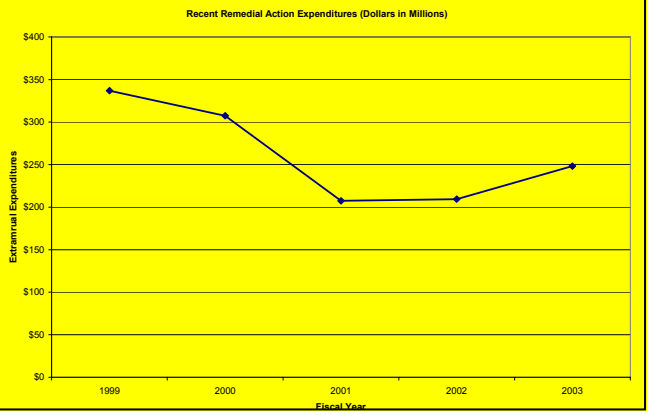
[24] Adm_Prog Historic SF Allocation Charts.pdf, sent by EPA on January 5, 2004.

covers these increases in administrative costs by reducing the resources available for programmatic functions.[25]



On-the-Ground Cleanup

Remedial action expenditures reflect payments made by EPA to private entities, primarily cleanup contractors. The recent trend (displayed in the chart to the right) has been a decrease in this category of expenditures, a fact which caused concern among some Subcommittee members.



[25] Ibid.

III. Listing and Management of Sites on the NPL

In Section 105(a)(8)(B) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Congress requires the President to "list. . .national priorities among the known releases or threatened releases throughout the United States. . .." This list has come to be known as the National Priorities List, or the NPL. It is further defined by regulation at 40 CFR 300.5 as "the list, compiled by EPA pursuant to CERCLA Section 105, of uncontrolled hazardous substance releases in the United States that are priorities for long-term remedial evaluation and response."

The NPL is one of the cornerstones of the Superfund Program. Decisions about the number and types of sites to list on the NPL have important implications for the Superfund budget and for affected communities and potentially responsible parties (PRPs). For instance, under 40 CFR 300.425(b)(1), only sites listed on the NPL are eligible for funding of long-term cleanups (i.e., remedial actions) from the Superfund trust fund. In addition, although all parties responsible for releases of hazardous substances are subject to retroactive, strict, joint, and severable liability under CERCLA, PRPs associated with NPL sites also are subject to judicial awards of three times the remedial costs incurred by EPA. Under EPA's current regulations, only communities around sites that are proposed for or listed on the NPL are eligible for technical assistance grants. Finally, Congress and other program overseers monitor progress at NPL sites to measure and evaluate Program performance.

Although the general perception is that the NPL reflects the most contaminated sites in the country, as the Superfund Program has evolved, the NPL has come to reflect the subset of the most contaminated sites that require Federal time, attention, and funding under the Superfund Program. Increasingly, when Federal funding under Superfund is not needed for cleanup, sites that present a level of risk that is eligible to be listed on the NPL are instead being addressed under other environmental remediation programs, such as state cleanup programs, or through Federal alternatives to NPL listing.

In September 2002, in response to questions from this Subcommittee, EPA headquarters informally surveyed EPA regional offices about the factors that most often prompt initiation of the Superfund site assessment process and inform eventual NPL listing. Based on responses from seven regional offices, it appears that the vast majority of sites considered for the NPL come to EPA's attention based on a recommendation from a state or a Tribal government, or through collaboration between a regional office and a state or Tribe. State regulators, for the most part, are the primary discoverers of contaminated sites, and state programs tend to be the default cleanup mechanism for most sites. When these programs cannot adequately address a site, for example, because of a significant orphan share, Superfund and other alternatives are considered. The regions reported that the need for Superfund money to pay for cleanup was the reason for approximately one-third of new NPL listings, another third resulted from lack of cooperation from PRPs , and the final third was due to a combination of other factors.

Because NPL sites remain the focus of the Superfund budget and because progress at NPL sites largely defines the success of the Program, EPA asked the Subcommittee to focus some of its deliberations on the role of the NPL, particularly as it relates to other cleanup programs.

This chapter describes the Subcommittee recommendations related to use and management of the NPL. The Subcommittee framed five questions under which it organized its recommendations on this topic.

- How can EPA make the best NPL listing decisions?
- How should EPA increase the transparency of listing decisions?
- What should be the role of other programs?
- How should EPA set priorities among listed sites?
- What are the options for increasing the resources available for cleanup?

The Subcommittee recommendations in this chapter should be applied to all NPL sites, including mega sites. In addition, the Subcommittee anticipates that its recommendations will be applied equally to sites addressed through the Superfund Alternative Program, which is currently addressing almost 120 sites that otherwise likely would be listed on the NPL.

How Should EPA Make the Best Listing Decisions?

The Subcommittee approached the question "What types of sites belong on the NPL?" by examining the NPL listing process and asking "How should NPL listing decisions be made?" This approach was taken because the Subcommittee reasoned that if the process for listing decisions is rigorous and robust, decision quality likely will be good. The Subcommittee recommendations focus on improving the use of the NPL by optimizing EPA's current listing and management practices; they do not redefine the program.

As it implements these recommendations, EPA will continue to be responsible for difficult choices about how many and what types of sites to list on the NPL, and funding will continue to be a limiting factor for Superfund site investigations and cleanups.

The Subcommittee recommendations on listing and managing sites on the NPL do not fully resolve its divergent views about funding and risk. The Subcommittee members' diverse interests reflect the broad range of views in the larger society regarding these issues and the conduct of the Superfund Program. Given these diversities of views, and numerous possible combinations of site-specific circumstances and factors that may prompt consideration of a site for the NPL, the difficult choices about how many and what types of sites to list are best made in the context of the public processes associated with site-specific NPL listing proposals. These difficult decisions should be guided by the factors and other considerations recommended by the Subcommittee, but are not prejudged by them.

Desired Outcomes of NPL Listing

In its deliberations on the listing process, the Subcommittee set for itself the objective of articulating an approach to NPL listing decisions in which the NPL is a true representation of the highest national priority sites in need of Superfund resources while, at the same time, recognizing budgetary constraints. In this context, and considering the Subcommittee recommendations, EPA should use the NPL listing process to achieve the following outcomes.

- The NPL should reflect sites that pose a significant risk to human health or the environment and that likely will not be adequately cleaned up, absent the resources (i.e., time, attention, and funding) available to sites listed on the NPL.
- The definition of significant risk should remain relatively consistent over time, Individual listing decisions should be based on the application of a standard set of criteria, rather than a comparison among NPL-candidate sites in any given year.
- Sites to be considered for NPL listing should continue to be identified by citizen petitions, state and local governments, Tribal nations, and EPA regional offices, with appropriate opportunities for input from potentially affected communities and PRPs.
- Rigorous review of hazard ranking system (HRS) scoring packages at the EPA headquarters level should continue to ensure proper application of the HRS model , and bring to bear a national perspective, consistency, and professional judgment. At the same time Headquarters level review should recognize that state and local governments, Tribal governments, and EPA regions are closer to the sites and have the clearest understanding of site conditions and other issues that should be considered when deciding to recommend a site for listing.

EPA should continue to exercise judgment and discretion in selecting from among NPL-eligible sites which sites to propose for listing. However, these decisions should continue

to be made primarily in regional offices where individuals are most familiar with site-specific conditions.

This approach should result in a list of sites that pose risk levels similar to those posed by sites listed in recent years, and that cannot be adequately addressed through other environmental remediation programs. Under this approach, the NPL provides a critical Federal safety net for all eligible sites. Highlighting the NPL's role as a safety net both facilitates the use of other programs when they can appropriately evaluate and clean up sites and ensures the continued certainty that the NPL can be used to provide (and pay) for cleanup where needed.

Where other programs cannot be used or are not appropriate, sites that are determined to pose significant risks should continue to be listed, regardless of the projected cleanup costs, amount of money in the Superfund Program budget, or degrees of risk at other sites being considered for listing in the same listing cycle. The NPL may grow slightly over time, as new sites are added and currently listed sites remain in the cleanup process. However, over the long term it may shrink, as cleanups are achieved and the number of sites that require Federal resources under Superfund decreases.

The Subcommittee recommendations on NPL listing are designed to help EPA achieve the outcomes described above. Recommendation 1 describes a set of factors that EPA should use to determine which NPL-eligible sites to propose for listing. Recommendations 2 and 3 describe the role of EPA headquarters in the listing process and call for EPA to continue and expand its practices of coordination, collaboration and information gathering and sharing during the site screening and assessment. Recommendation 4 suggests some specific improvements to EPA's implementation of the HRS.

In chapter IV the Subcommittee also makes a specific recommendation about NPL listing for large, geographic areas with multiple sources of contamination that have the potential

to be mega sites. (See Recommendation 16.) And, in chapter VI there is a discussion of the importance of pollution prevention efforts to reduce the number of sites that may need clean up in the future.

Recommendation 1: EPA should apply a set of consistent factors from year to year to choose which NPL eligible sites to propose for listing in each listing cycle. Anticipated cleanup costs and the amount of funds available in the Superfund Program budget should not be criteria used to include or exclude sites from the NPL.

NPL eligibility is largely determined based on screening for threats and potential threats at a site. NPL candidacy (i.e., the subset of eligible sites to propose for the NPL) also takes into consideration factors related to program management, such as whether the site is being appropriately addressed by another program, or whether there is support in the affected community or the state or Tribal government for NPL listing. Recommendation 1 calls for EPA regional offices to use the following consistent set of questions to determine which NPL-eligible sites to propose to EPA headquarters as candidates for NPL listing.

- What are the risk drivers? Current EPA guidance on setting priorities for NPL candidate sites (OSWER Directive 9203.1-06) lists seven sets of considerations that, although addressed in HRS scoring, should also be evaluated qualitatively using best professional judgment for both scored and unscored HRS pathways. These include whether a releases has been observed, the types of exposures present, and whether the Agency for Toxic Substances and Disease Registry (ATSDR) has issued or is planning to issue a health advisory. The Subcommittee endorses continued consideration of these seven sets of considerations.
- Are there risks not reflected in the HRS score?
- Is or will another program appropriately address the site? The Agency should not use scarce Superfund time, attention, or funding when another program could appropriately address a site and has the capacity (people and resources) to carry

out site evaluation and clean up.[1] Such programs might include state or Tribal environmental programs, redevelopment programs, and other Federal programs, such as the Resource Conservation and Recovery Act program.

- Are removal actions complete, underway, or scheduled? If so, will they significantly reduce risks?
- Have PRPs completed, undertaken, or scheduled response actions at the site? If so, are such actions likely to continue? Many state environmental cleanup programs have the authority to enter into enforceable agreements that can be used to ensure and oversee cleanup. In general, sites that are being appropriately addressed under such agreements should not be considered candidates for the NPL.
- What is the degree of public concern? One of the reasons that the NPL is the most appropriate approach for some sites is that using Superfund may be the only practical way to respond to the high degree of public concern in some communities. In evaluating this issue, EPA should consider the extent to which a community has been informed about a site and involved in site screening and assessment.
- What is the degree of support for listing from state or Tribal governments? EPA has a policy of seeking state Governors' and Tribal governments' concurrences on all new NPL listings, and has a procedure in place to attempt to resolve issues when states or Tribes are concerned about a listing. The Subcommittee could not reach consensus on whether Governors' and Tribal governments' concurrences should be required for listing. However, members did agree that the views of states and Tribal nations should be considered during the listing process.
- Are environmental justice concerns associated with the site?

[1] As discussed more fully in Recommendation 7 the Subcommittee does not anticipate that many, if any, other cleanup programs will have access to the public funding necessary to independently pay for cleanup at NPL-caliber sites. Their primary role will be in providing alternative administrative mechanisms and staff resources to compel and oversee cleanups. Of course, where funding is available, these other programs should be considered for cleaning up sites.

The above questions should be considered on a site-by-site basis. Because the questions are based upon and incorporate the factors described in EPA's current guidance for priority setting at NPL candidate sites, OWSER Directive 9203.1-06, the Subcommittee anticipates that EPA will be able to implement a process that considers these questions without making major changes to the Agency's current procedures.

Cleanup Costs v. National Priorities

Recommendation 1 specifically states that EPA should not use estimates of cleanup costs or the amount of money available in the Superfund Program budget to make decisions to include or exclude sites on the NPL. While decision makers may have an awareness of costs and knowledge of likely program funding, the Subcommittee does not believe that these factors should limit or expand the number or types of sites listed on the NPL. Rather, NPL should represent true national priorities–sites that meet the eligibility criteria and are judged by EPA to need the time, attention, and funding that only the Superfund Program can provide.

One of the implications of the recommended approach is that the NPL may grow faster in the future than it did in 2002 and 2003. , putting additional pressure on EPA to do more with scarce resources. The Subcommittee addresses the issue of resources in Recommendation 11 which addresses setting priorities among listed sites and in Recommendations 12 through14, which deal with increasing the funding for on-the-ground cleanup actions. Resources are also addressed in chapter VI, where the Subcommittee recommends a limited, temporary increase in the annual appropriate to the Superfund Program.

Recommendation 2: EPA regional offices should continue to collaborate with state environmental agencies and should improve collaboration with states, Tribal nations, and local governments as they consider which sites to recommend to EPA

headquarters for NPL listing. The role of EPA headquarters should be to ensure that final Hazard Ranking System scoring packages are legitimate and defensible and that listings reflect consideration of the consistent set of factors recommended by the Subcommittee from a national perspective.

Of the hundreds of thousands of contaminated sites across the United States only a small fraction will rise to the level of a national priority needing Superfund Program attention. EPA routinely collaborates with state officials in identifying sites for consideration for the NPL and in the pre-screening and Superfund site assessment processes that lead up to a decision to propose a site for NPL listing. EPA also coordinates and collaborates with Tribal and local governments in these processes. However, based on the knowledge and experiences of some Subcommittee members, this coordination and collaboration appears to be more ad hoc than EPA's interaction with state environmental agencies.

Collaboration among Tribal nations, states, local governments, and EPA regional offices is a critical step in sorting through the many contaminated sites that may need attention and ensuring that resources for site assessment and eventually cleanup are oriented towards the sites that truly require national attention under the Superfund program. The first part of Recommendation 1 is intended to ratify the importance of these coordination efforts and relationships, and encourage EPA to strengthen coordination where possible.

As EPA implements Recommendation 2, the Subcommittee cautions against spending significant resources on standardizing or formalizing coordination practices, or on developing extensive guidance on coordination. In general, individual EPA regional offices have developed practices of coordination that are appropriate to their region- and state-specific circumstances. These practices include regional decision teams, site "watch lists," and other strategies. Informal region- and state-specific approaches are appropriate, so long as coordination is achieved. If the Agency believes coordination activities in the regional offices need strengthening, it might consider a few discrete, time- and resource-limited tasks to further Recommendation 2. These might include:

- Evaluation of regional coordination activities to document best practices and ensure that all regions have coordination practices in place; and,
- Issuance of a brief guidance on coordination to the regions to promote a reasonable degree of national consistency and ensure an adequate level of consultation with states and local governments, Tribal nations, and other Federal agencies.

The National-Level Review Process

In 2002, EPA instituted a national-level process in which officials from the regional offices and headquarters evaluate all NPL-candidate sites, group them in tiers based largely on the significance and urgency of risk, and then make recommendations to the Assistant Administrator for the Office of Solid Waste and Emergency Response about which NPL candidate sites should be proposed for NPL listing. Prior to this change, in general, (1) EPA headquarters was involved in decisions about identification of NPL-candidate sites by providing guidance on the application of national policy and ensuring that listing packages were appropriate and legally defensible; and, (2) most NPL-candidate sites sent forward by regional offices were proposed for listing on the NPL provided the HRS score was valid. Since the advent of this new national-level review process, only approximately half of the NPL-candidate sites sent forward by regional offices to headquarters have not been proposed for NPL listing. The remaining NPL candidates sent forward by the regions have been held over for reconsideration in future listing cycles.

The Subcommittee had a range of views about the national-level review process. Some members were very supportive of this review, as a necessary step in EPA's ensuring quality listing decisions and an important factor in providing the Assistant Administrator for the Office of Solid Waste and Emergency Response the information and perspective she needs to fulfill her delegated responsibility to make listing decisions. Others viewed

it as an unnecessary step, further removing decision making from those in the states and regions who are most familiar with site-specific circumstances and, therefore, best equipped to make recommendations about which sites constitute a national priority.

Overall, as part of the compromise that their recommendations to EPA represent, Subcommittee members were willing to put aside these differences, provided that the national-level review process (if it is continued) is focused on:

- bringing a reasonable degree of national consistency and judgment to bear on NPL listing proposals,
- monitoring regional offices' implementation of program guidance (including application of the questions recommended),
- ensuring an appropriate degree of geographic fairness in NPL listings so that one region of the country does not inappropriately monopolize the NPL, and
- continuing to ensure that HRS packages are of high quality and legally defensible.

Fundamentally, any national-level review process must be focused on ensuring quality decisions based on the questions recommended for consideration and should not be used to introduce new criteria for making decisions about NPL listings.

Recommendation 3: EPA should reach out to potentially affected communities, local governments, and potentially responsible parties earlier in the Superfund site assessment process to share and solicit information about sites being considered for NPL listing.

Currently, potentially affected communities, local governments and PRPs (if known) are involved in the Superfund site assessment process only on an ad hoc basis, if at all. Expanding outreach practices to involve more individuals and entities earlier in the process should foster information sharing about sites under consideration and give communities, local governments and PRPs more opportunities to participate in the site

screening and assessment process. Earlier involvement and information sharing are important for a number of reasons.

- Community leaders, site neighbors, local officials, previous site workers, and PRPs can be sources of historical information and knowledge concerning site activities, contamination, and exposure pathways. While this information may come forward eventually, particularly for sites that move through the screening and assessment process to an NPL listing, bringing it forward earlier may help EPA make better screening, assessment, and, eventually, NPL listing decisions.
- Earlier involvement may prompt PRPs to undertake and fund some or all investigation or clean up activities without an NPL listing, for example, under the auspices of a state environmental cleanup program if appropriate, thereby reducing or delaying the number of sites at which Superfund resources are needed. This may be the case particularly where PRPs who may be willing to undertake or fund site investigations under a non-NPL program do not own the site under consideration and, therefore, under EPA's current process, often do not become involved until after a site is placed on the NPL and the opportunity to proceed under another program is lost.
- Earlier involvement of stakeholders will help EPA make better informed, more inclusive decisions about how a site should be described if it is listed. This is particularly important when EPA is evaluating a large, geographic area where multiple, unrelated contaminant sources are present, and considering whether it is best to address the area as one "site" or in smaller units more closely tied to individual hazardous substance releases. Earlier involvement of stakeholders will help the Agency identify which releases are truly national priorities, and whether releases are inextricably intertwined or whether cleanup would be expedited or made more efficient if discrete releases were addressed separately as multiple cleanups under the NPL, under other programs, or a combination of these approaches. As discussed further in chapter IV, these issues become increasingly important and more difficult as the costs, technical and legal complexities, and

shear size of a site increases. Therefore, consistent with the Subcommittee's emphasis on better management of expensive sites throughout the pipeline, such sites or potential sites should receive special attention during early screening. (See Recommendation 16.)

[Following bullets drawn from the discussion of ESI/RI in the 11/24/03 draft]

- Earlier involvement may serve to supplement existing data to allow HRS scoring to rely more heavily on evaluation of site-specific conditions. (See Recommendation 4.)
- As part of reaching out to stakeholders, particularly state, local and Tribal governments, EPA can gather information on, and make connections with, non-NPL programs that may have independent missions or activities that could positively or negatively affect clean up of a site. This information could be used to capitalize on potential positive effects (e.g., opportunities to leverage funding) and avoid negative effects. (This issue is discussed further in Recommendations 7 through 10.)
- Earlier involvement may help EPA identify potential redevelopment opportunities that could, if pursued and integrated into clean up activities early in the process, provide additional focus and funding for the clean up.

Expanded Site Inspection/Remedial Investigations

[Following text moved from the supporting text discussion of recommendation 16 from the 11/24/03 draft (expanded site assessments for large complex sites) and revised as shown.]

As part of its early screening activities, EPA should consider whether to carry out an Expanded Site Inspection/Remedial Investigation (ESI/RI). As described by current EPA guidance, an ESI/RI may be used to gather site characterization data common to SI and RI activities in one step, thereby expediting the later collection of data when comprehensive RI activities are performed. ESI/RIs facilitate, but do not replace

additional investigations that might occur if a site is listed. ESI/RIs may be particularly relevant when the Agency is evaluating a large geographic area with multiple, distinct contaminant sources and EPA is considering whether or not to address the areas in smaller units. (See Recommendation 16.)

Given the level of commitment that is needed for large, complex sites, it is particularly important that an understanding of actual site-specific conditions, rather than default assumptions, drive decision-making. Additional up-front investments in ESI/RIs may pay important dividends in helping EPA to determine how to best address large geographic areas.

Procedures and Timing for Early Involvement and Outreach

The Subcommittee is not recommending a specific procedure that EPA should use to reach out to local governments, PRPs or communities. EPA should use targeted efforts and informal mechanisms where effective, should take care to contact representatives of disparate interests, and should ensure that participants have enough information about a site under consideration to participate in a meaningful way.

The Subcommittee also is not recommending that outreach start at a specific point in the site screening or assessment process. Involvement should begin as early as practicable, considering site-specific circumstances. To facilitate earlier identification and involvement of PRPs, the Agency should modify its guidance on PRP searches to encourage searches as early as practicable in the site assessment process, instead of after site listing.[2]

[2] EPA's current guidance on PRP searches calls for the search to be carried out 90 days before the start of remedial design and remedial action implementation. This point in the process is long after a site is listed on the NPL. It is much too late to allow PRPs (particularly those that do not own the site in question) to participate in discussions about site investigations and remedy selection, or consider voluntarily undertaking site investigation and cleanup under a non-NPL program.

The Subcommittee emphasizes that it is not recommending diversion of Superfund resources to extensive outreach and involvement activities at every new site entered into the CERCLIS data base. (In 2003, EPA entered more than 240 new sites into CERCLIS[3].) Rather, EPA should focus its efforts to involve stakeholders earlier in the site assessment process on the subset of sites that likely will be found eligible for NPL listing.

Recommendation 4: EPA should work with its partners to review the application of the hazard ranking system model to ensure that it (1) accurately characterizes threats at sites located in sparsely populated areas and appropriately considers environmental justice concerns, traditional lifestyles, vapor intrusion, and explosive hazards; and (2) uses available and reliable site-specific data, rather than routinely defaulting to standard exposure pathway assumptions.

The Subcommittee did not carry out a detailed assessment of how the HRS currently is functioning, and is not making recommendations related to the 28.5 HRS scoring cut off or the HRS model generally. At the same time, because the HRS is the means by which EPA most often defines which sites are eligible for NPL listing, the Subcommittee discussed the HRS during its deliberations on the use of the NPL and the NPL listing process and provides a number of suggestions for improvements to EPA's implementation of the HRS.

The HRS serves a specific and limited function in the Superfund Program. It is a screening tool that assigns certain numerical values to a variety of exposure characteristics known or assumed to be associated with a site. It is designed to be conservative, and while Subcommittee members had a range of views as to whether the HRS was too conservative or not conservative enough, all recognized that it delineates a set of sites for EPA to consider for the NPL and is not a risk assessment..

[3] Information provided by EPA from *eFACTS* on October 16, 2003.

During the HRS scoring process, once an evaluation of one or more of the critical exposure pathways results in an HRS score of 28.5 or greater, a site becomes eligible for the NPL. EPA generally does not invest additional resources in completing calculations for all pathways to determine how high the site score would be if all pathways were considered. Because of this practice (which is a legitimate resource saving technique), HRS scores cannot be used to compare the relative degree of risk among NPL sites, and cannot be relied upon to make judgments about the total risk posed by an individual site.

Once sites are determined to be eligible for listing, they are not automatically listed. Indeed, many sites that score 28.5 are not listed. Rather, such sites are further screened by EPA and only a subset are proposed for the NPL.

Because EPA routinely exercises its discretion not to list NPL-eligible sites an inappropriate or less than perfect application of the scoring system can be corrected during EPA's exercise of discretion relative to listing decisions. On the other hand, if a site does not score 28.5 or greater, EPA generally is unable to consider it for NPL listing. Subcommittee members identified a number of concerns related to implementation of the HRS.

Some Subcommittee members expressed concern that limitations of the HRS as implemented may preclude NPL listing of sites that pose legitimate and serious risks to humans and the environment and that warrant national attention under Superfund. Other Subcommittee members had concerns about the opposite problem, that application of the HRS may result in listing of sites that do not truly pose the types of legitimate, significant risks to humans or the environment that the Superfund program was designed to address. Some Subcommittee members suggested that layers of conservatism built into the HRS default assumptions result in unreasonably conservative listing decisions. Other Subcommittee members asked whether the HRS appropriately balances real and present danger with potential future risks, by giving the same weight to both circumstances.

If application of the HRS either over- or underestimates threats at a site, the Subcommittee recommendations particularly Recommendation 3, which is related to earlier involvement of affected communities and potentially responsible parties, likely will improve HRS scoring and interpretation by bringing more information to the table earlier in the site screening and assessment process. The Subcommittee recognizes that, as a screening tool, the HRS must cast a wide net and will likely remain imperfect. At the same time, Subcommittee members have identified a number of specific questions about HRS implementation that should be considered:

- Does implementation of the HRS appropriately enable EPA to list sites that are not located near major population areas or environmental justice communities?
- Does implementation of the HRS appropriately enable EPA to list sites that pose a threat to exposed individuals with traditional lifestyles?
- Does implementation of the HRS appropriately address threats posed by vapor intrusion and explosive hazards?
- Does implementation of the HRS appropriately consider real site-specific data to reflect actual site conditions?

Sparsely Populated Areas and Environmental Justice communities

If implementation of the HRS model does not adequately capture high-risk sites located in sparsely populated areas, EPA should identify a mechanism for deeming these sites eligible for the NPL so they can be listed, if appropriate. While CERCLA requires that the prioritization process take into account to the extent possible the population at risk, it does not express an intention to protect dense populations to the exclusion or detriment of sparse populations. Should EPA's initial investigation of this issue reveal that the HRS model is screening high-risk sites from further consideration for the NPL because they are located in sparsely populated areas, EPA should initiate a dialogue, including the

relevant stakeholders, to determine how to address the HRS bias towards heavily populated.

In addition to concerns about sparsely populated areas, Subcommittee members were concerned that the HRS model may not adequately incorporate environmental justice considerations. Many believe that socio-economically depressed areas and communities of color are often subjected to a greater proportion of environmental insult as a result of ongoing and abandoned hazardous substance releases, and fewer redevelopment opportunities. As a result, a community could be exposed to a number of sites, none of which scores 28.5, but that together may pose greater risks to receptors than sites currently on the NPL. In addition, genetics, inferior nutrition, and poor health care may all predispose people living in depressed communities or communities of color to disease and other adverse effects from contaminated sites. As a site-specific screening tool, the HRS does not incorporate such considerations; rather, it evaluates releases in isolation.

Although the Subcommittee acknowledges this issue, it did not have the opportunity to thoroughly evaluate the HRS components and arrive at a definitive proposed resolution. Therefore, the Subcommittee suggests that EPA request that the National Environmental Justice Advisory Committee (NEJAC) follow up on its current related efforts and help formulate policies that would ensure that predisposition to disease, as a result of genetics, poor nutrition, or health care and cumulative exposures from a disproportionate number of contaminant sources, be considered in NPL listing decisions. Additionally, EPA should consider convening a broad stakeholder task force (EPA/state/Tribal/industry), with public input, to make recommendations on scientifically supportable policies to address concerns identified by NEJAC related to NPL listing.

Traditional Lifestyles

With respect to traditional lifestyles, EPA should consider creating a working forum with Tribal associations, including Alaskan Natives and Hawaiian Islanders as well as Native

American Indians, to develop reasonably anticipated exposure scenarios for these groups and to determine what regulatory actions are needed to ensure that such scenarios are incorporated into listing decisions. The Subcommittee was briefed on traditional lifestyles and recognizes that, at least in some cases, traditional and subsistence practices of Tribal members are not sufficiently addressed in any aspect of the Superfund Program – from NPL decisions, to risk assessment, to remedy selection and deletion. In addition, although traditional lifestyles tend to be associated with Tribal nations, they also can be important in non-Tribal communities, particularly communities of color, where traditional religious practices are predicated on the use of the natural environment.

Vapor Intrusion

The Subcommittee supports EPA's current investigation of the prevalence and seriousness of vapor intrusion at sites currently listed on the NPL. In the meantime, EPA should work with the Association of State and Territorial Solid Waste Management Officials in their ongoing effort to determine whether vapor exposure pathways can be addressed adequately through application of the HRS. If it is determined that HRS screening is sufficient, EPA should disseminate its findings through training and/or new or revised guidance/policy directives. If it is determined that the HRS does not adequately reflect risks from vapor pathways, EPA should work with states, Tribal nations, and other appropriate individuals to decide what steps to take to ensure that sites posing significant enough risks via vapor intrusion are eligible for listing on the NPL.

Explosive Hazards

EPA should determine, with input from relevant stakeholders, whether it currently has the option of placing explosive hazard sites on the NPL, and if not, whether such an option would expedite and improve the cleanup of such sites. Meanwhile, EPA should address imminent and substantial dangers to the public health or welfare posed by explosive hazards by taking removal actions where appropriate. Hazards resulting from exposure

to unexploded and other ordnance pose threats not only at federal facilities, which are not specifically addressed in this report, but also at numerous formerly used Department of Defense sites, and private party sites. These threats currently may not be adequately addressed by the HRS.

Use of Real, Site-Specific Data

EPA should supplement HRS scores calculated using the standard pathway models and default assumptions with additional consideration of site-specific data. Use of site-specific data is important to clarify HRS default assumptions and underlying presumptions such as fish consumption rates, likely contaminant receptors, etc. Consideration of site-specific data should ensure that decisions based on HRS scores reflect actual site conditions.

EPA should encourage affected communities and potentially responsible parties to provide available site-specific data that could be used to mitigate the deficiencies of the HRS model's uniform incorporation of a series of default assumptions and underlying presumptions by facilitating a more thorough understanding of actual site conditions, threats and potential threats. . For example, if water hardness or softness affects the risk that a contaminant may pose to fish, site-specific data on water hardness or softness (as well as contaminant concentrations) might be used to further interpret an HRS score. This enhanced use of site-specific data during interpretation of HRS scores should improve the accuracy of screening and assessment of NPL-eligible sites, but, because data is considered during interpretation of HRS scores, avoids EPA's having to modify the standard default HRS model parameters, which are established in large part by regulation.

Other Concerns About the HRS

In addition to the concerns about implementation of the HRS described above, some Subcommittee members had a much more fundamental concern that because the HRS is not a risk assessment, but rather a screening evaluation that gives consideration to both current and hypothetical potential future threats, it does not provide the type of risk characterization that EPA should use to make decisions about which site to propose for listing on the NPL. These concerns are described in more detail in Appendix [number].

Cautionary Note to All NPL Listing Recommendations

Although the Subcommittee has chosen to address the question of "What sites belong on the NPL?" by recommending a package of improvements to the current NPL listing process, is not suggesting that EPA should delay timely listing of a site that obviously will not be adequately addressed by a non-NPL program. EPA retains sole discretion to make decisions about which sites to list on the NPL; these recommendations are not intended and should not be interpreted to limit that discretion. The Agency has a responsibility to make listing decisions and get sites cleaned up in a timely and efficient manner, in accordance with promulgated procedures and based on credible technical evidence.

In addition, the Subcommittee is not advocating that EPA redirect major resources from on-the-ground cleanup activities to these reforms or development of significant new systems or guidance. Because these reforms represent improvements to existing systems, the Subcommittee expects that the Agency can accomplish them within existing systems and using existing program administration resources.

How Should EPA Make Its Decisions about Screening, Assessing and Listing Sites More Transparent?

EPA completes assessments at approximately 400 potential NPL sites[4] a year. The states and regional offices recommended to EPA headquarters an average of 50 sites per year as NPL candidates and EPA headquarters formally proposes for listing on the NPL an average of 27 sites per year. The Agency lists more than 95 percent of the sites it formally proposes.[5] These figures make it clear that the difficult choices EPA faces in identifying potential NPL sites and in screening, assessing, and determining which sites to propose for listing are made internally, before the formal, open, public process associated with a rulemaking proposal for NPL listing is initiated.

While EPA and its partners in state environmental agencies and local and Tribal governments must have the ability to exercise professional discretion and wisely use limited public resources, they should not continue to exercise this discretion in a vacuum. They have a responsibility to ensure that the implications of their decisions are understood by those who are most affected by them—namely, the communities around potential NPL sites, the parties who are responsible for cleanup, and the state and Tribal environmental programs to which communities and PRPs will likely turn when a potential NPL site does not make it to the NPL.

The Subcommittee recommendations on this issue are intended to bring a reasonable level of transparency to the Agency's decision making, while, at the same time, respecting the Agency's discretion. Recommendation 5 describes an annual reporting process that could be used to summarize Superfund decision making. Recommendation 6 calls for EPA to be more consistent and informative in its communication of Superfund decisions about specific sites.

Publishing an Annual Report

[4] Average of annual PA and SI completions from efacts. Need to check/update w/ 2003 numbers.

[5] Number of NPL sites + sites deleted + sites still proposed = total sites, with sites listed + deleted expressed as a percentage of total sties, based on Sept. 2002 numbers from efacts. Need to update with 2003 numbers.

Recommendation 5: EPA should improve the information and data on the Superfund Program and publish an annual report that presents key data on the program, including program progress and expenditures, anticipated costs, and a summary of sites considered for listing and listing decisions.

The Subcommittee relied heavily on EPA to provide data and information about the numbers or sites being addressed by the Superfund Program, Program progress and remaining cleanup obligations, estimates of the potential future cost burden to the Program, and the numbers and types of NPL-eligible and NPL-candidate sites considered by the Agency. While the Agency was forthcoming with information, it was clear that the information was produced with difficulty and at considerable staff cost.

The purpose of all information collected by the Superfund Program should be to inform decisions and allow the program to plan effectively by spotting trends before they become crises. The Subcommittee's impression is that EPA decision makers do not have key program management information at their fingertips, and, even where that information can be made available it often must undergo extensive revisions for quality control before it can be used. This seems particularly true with respect to information about the types of site conditions and contaminants that are driving remedies at listed sites, information about the numbers and types of potential future NPL sites, and information about program expenditures and potential future costs. The Subcommittee encourages the Agency to increase its understanding of these three data sets and to improve the quantity and quality of real-time data available to EPA managers and to the public on these issues. This is particularly important for mega sites and potential mega sites, because of these sites' potential to dramatically affect Program funding needs and priorities. (See Recommendation 15, which calls for increased management attention for mega sites.) Increased use of internet or other web based systems may be an efficient way to make real-time data more readily available.

In addition, EPA should communicate the data it does have more freely and more openly. Recommendation 5 calls for an annual report on the accomplishments and future obligations of the Superfund Program. At a minimum, this report should include:

- a summary of program activities and expenditures by fiscal year;
- the status of listed sites including a summary of remaining cleanup obligations and projected future costs; and,
- the NPL candidate sites considered for listing and listing decisions made.

The Superfund annual report should summarize the difference between obligations EPA anticipates will be met using the Superfund budget (i.e., fund-lead actions) and obligations that PRPs are funding. It also should show program expenditures in intramural and extramural costs categories. The Subcommittee recognizes that EPA may have legitimate concerns about maintaining confidentiality sometimes necessary to preserve the Agency's enforcement discretion and may need to structure the report accordingly. However, the Subcommittee does not believe that EPA should continue to keep confidential the names and locations of NPL-candidate sites that the Agency chooses not to list in any given listing cycle.

The Superfund annual report should consist largely of data and information that EPA generates from its data systems, and should not be a glossy publication prepared using many hours of EPA staff time and extramural resources. In past years the Agency produced under CERCLA Section 301(h)(1) an Annual Report to Congress on program progress. These previous reports are useful models for the Agency to consider as it implements Recommendation 5.

Communicating Consistently and Informatively

Recommendation 6: EPA should establish standard protocols to ensure that regional offices publicly communicate available information on site conditions and current and

potential future threats to humans and the environment: (A) when a site is dropped from the Superfund site assessment process; and (B) when an NPL- candidate site is not proposed for NPL listing.

Recommendation 6 asks that EPA improve the transparency of its decision making and increase the information it makes available to the public at two critical points: (1) when sites are screened from further assessment under Superfund; and (2) when the Agency chooses not to list an NPL-candidate site. The first situation is common, in 2003 EPA added more than 240 sites to the superfund site assessment process; since the Program's inception, it has assessed more than 43,000 sites. The majority of sites considered under the Superfund site assessment program are screened out for various reasons. The second situation should be rare.

Sites Screened Out During the Superfund Site Assessment Process

The majority of sites considered under the Superfund site assessment process are screened out for various reasons. Most often this occurs because sites are not eligible for the NPL, that is, EPA determines that they will not achieve an HRS score of 28.5 or greater.

Sites that are eligible for the NPL also may be screened from further consideration. For example, a site might be screened out because it can be appropriately addressed under a non-NPL cleanup program, such as the RCRA Corrective Action Program, or because PRPs enter into a voluntary agreement to carry out the cleanup either under the Superfund Alternative Program, or, more commonly, under a state environmental remediation program. EPA also might screen out an NPL-eligible site , if the default assumptions and underlying presumptions used in the HRS model are not consistent with actual site-specific conditions, or based on evaluation of the immediacy and significance of threats and potential threats posed by the site and the number and types of receptors (humans and environmental) that may be at risk.

Generally, sites that are screened from further assessment in these ways are reflected in EPA's Superfund information tracking system (CERCLIS) as "No Further Remedial Action Planned under CERCLA" or "NFRAP." Sometimes, particularly in the case of NPL-eligible sites, sites that are screened .out are not reflected as NFRAP and instead are tracked informally by the EPA regional offices for further consideration in the future.

Although such sites have been judged by EPA to not require further consideration under Superfund, they typically are not "clean." That is, some environmental contamination may be present even if it does not rise to the level of being a national priority under Superfund. While the Subcommittee recognizes that it is important to minimize further expenditure of Superfund resources at these sites, it is also concerned that sites screened from further assessment under Superfund may be misconstrued by some as being "clean" even when site conditions may pose threats to humans and the environment. EPA must ensure that it communicates clearly and publicly about the status of these sites.

NPL-Candidate Sites Not Proposed for Listing

In Recommendation 1, the Subcommittee calls on EPA to not delay the listing of NPL-candidate sites[6] and the Subcommittee expects that future delays in listing will be rare. At the same time the Subcommittee recognizes that the Assistant Administrator for Solid Waste and Emergency Response has the final responsibility to make decisions about which sites to propose to the NPL, and in any given listing cycle she may choose to delay listing an NPL-candidate site for legitimate reasons. For example, site circumstances occasionally may change in a significant way after an NPL-candidate site is sent forward

[6] As used in this report, "NPL-candidate sites" are sites that have been determined to be eligible for the NPL and that make it through the Superfund site assessment process and are recommended for proposal to the NPL by EPA regional offices to headquarters. They are a subset of NPL-eligible sites.

by a regional office, such as when PRPs step forward to clean up an NPL-candidate site voluntarily.

While the Subcommittee recognizes and affirms EPA's need to exercise professional judgment and discretion in selecting which sites to propose for listing on the NPL, it is troubled by the lack of transparency in this decision making. In most cases, NPL-candidate sites are recommended for proposal to the NPL only after non-NPL cleanup programs have been considered and found not to apply or to be unable to appropriately clean up a site. Previous Subcommittee recommendations (see Recommendations 3 and 7) will strengthen this by involving other parties earlier in the site screening and assessment processes and by ensuring that regional offices have knowledge and understanding of the capabilities and applicability of non-NPL programs and that such programs are considered before listing decisions are made.

When NPL-candidate sites are not listed EPA has a special responsibility to ensure appropriate action is taken. As described earlier in this report, the NPL is a critical national safety net in these cases, and EPA cannot assume that its decisions to not list NPL-candidate will somehow change the fundamental equation that caused the sites to be sent forward for listing in the first place. Except in cases where PRPs or others step forward to initiate and fund cleanup, the Subcommittee does not expect that NPL candidate sites will be addressed by other environmental remediation programs , because these programs are considered by regional offices during the site screening process and, if another program is available and appropriate, sites generally are addressed by that program rather than recommended for NPL listing.

Standard Communication Protocols

Recommendation 6 advises EPA to establish standard protocols to ensure that regional offices communicate publicly and clearly about sites that are screened out during the Superfund site assessment process and NPL-candidate sites that are not proposed for

listing. Communication should focus on the known interested parties associated with a site. Such interested parties may include state environmental agencies, Tribal governments, local governments potentially affected communities, and known PRPs. EPA's efforts to provide opportunities for stakeholders to become involved earlier in the site assessment process will assist the Agency in identifying interested parties. (See Recommendation 3.) Communication should state explicitly that the site has not been determined to be clean, and include whatever information is readily available about the types of contaminants likely to be present, environmental media affected, potential receptors, on going cleanup efforts under other programs, if any, and other relevant site conditions.

EPA should consider whether there are ongoing efforts to address sites by other parties when determining the most appropriate communication mechanism. For example, where a state environmental program is adequately addressing a site and is appropriately involving stakeholders, the best communication method may be to post information about the site assessment process and decision to screen out a site on the EPA website and work with the state environmental program to notify stakeholders of the availability of this information. Where there are not ongoing efforts, more direct communication to individual stakeholders is particularly important.

In addition, because of EPA's special responsibilities related to NPL-candidate sites, the Agency should keep a publicly available list of candidate sites it does not propose for listing in each listing cycle. The Agency should monitor these sites for changes in site conditions, and reconsider them during future listing cycles.

What Should Be the Relationship of Other Programs to the NPL?

In 2002, in response to questions posed by the Subcommittee, EPA surveyed the regional offices about their efforts to consider other programs during the site screening and assessment process. All ten EPA regional offices confirmed that they convene meetings

of a regional Decision Team or similar body to coordinate evaluation of which sites most need to be addressed using the NPL and which might be appropriately addressed using a non-NPL cleanup program. However, the programs considered and the methods and nature of this analysis can vary significantly among regions. Nine regions reported routine meetings with state program managers to coordinate cleanup priorities; seven reported similar meetings with the Superfund removal program; and three reported routine meetings with other EPA programs, such as the RCRA corrective action program. The regions also reported that they consult informally with these programs before proposing a site to the NPL, and eight regions reported that they also consider other federal agency response programs before proposing a site to the NPL, , such as those put in place by the Departments of Defense and the Interior.

Coordinating with and Complementing the NPL

The Subcommittee had extensive discussions about the role that other cleanup programs should play relative to the NPL. The primary outcome was recognition that other cleanup programs should work in harmony with the NPL and that both a strong, functioning NPL and strong, functioning non-NPL cleanup programs are needed to address the full range of contaminated sites and cleanup challenges that exist in this country. A strong NPL program is important, in part, because it serves to strengthen other cleanup programs, particularly state programs, by providing a strong enforcement mechanism if progress is not made.

The second outcome of the Subcommittee deliberations on other programs was a desire to ensure that to the extent other programs offer authorities, processes, or funds that will facilitate cleanup of NPL-eligible sites, these “tools” are known and available to EPA regional offices, are deliberately and thoughtfully considered during site screening and assessment, and are used where they can be applied to appropriately clean up sites and therefore reduce the burdens on the Superfund Program.

The Subcommittee identified several ways in which non-NPL cleanup programs might work in harmony with the NPL.

Supplemental Funding. A non-NPL program might provide sources of funding that could be used to supplement funding under Superfund. For example, under some circumstances the U.S. Army Corps of Engineers can provide funding for environmental dredging in ways that may complement an ongoing Superfund cleanup. Although the programs considered by the Subcommittee in general do not have resources adequate to independently fund expensive NPL-caliber cleanups, at the same time, any potential for additional resources at specific sites should be seriously considered and carefully investigated, especially in a time of funding challenges when even a relatively small amount of additional funding might make a difference at a particular site. In cases where funding is provided by another government Agency, it is critical that cleanups remain protective of human health and the environment.

Additional Cleanup Authority. Authorities from non-NPL programs might be used in combination with the Superfund program to provide additional cleanup authorities or strategies to augment a Superfund cleanup. These coordinated approaches have been used at a number of Superfund sites, such as the Grand Calumet cleanup, and are being considered under EPA's Urban Rivers initiative.

Supplemental Administrative Oversight and Enforcement. Some non-NPL programs might provide a viable alternative administrative framework under which cleanup activities at a site could be appropriately overseen or enforced so that a Superfund action is not necessary. For example, Superfund already has a policy of deferring responsibility for cleanup to the RCRA corrective action program, where that program applies.

Use of a non-NPL program to oversee or enforce cleanup might also be appropriate where site investigations and cleanup activities will be funded by PRPs and a state program can provide appropriate oversight of the PRP cleanup. Again, to the extent that

non-NPL programs can provide appropriate oversight of cleanup of NPL-eligible sites and have the capacity (staff and resources) to carry out this oversight, they are important alternatives and their use will allow Superfund resources to be directed only toward sites where such resources are most needed.

Recommendation 7 calls on EPA to ensure that non-NPL programs are considered during the listing process and describes four ways that EPA should improve coordination with non-NPL programs. Recommendation 8 emphasizes that EPA should also leverage resources from other programs, where available, after sites are listed. Recommendation 9 encourages EPA to continue to invest in building the capacities of state and Tribal environmental programs, and Recommendation 10 advises EPA to make technical assistance grants available to NPL-eligible sites that are not proposed for listing.

Ensuring Consideration of and Coordination with Non-NPL Programs

Recommendation 7: Recognizing that the demands for cleanup exceed the supply of governmental resources, in exercising its discretion to list sites on the NPL, EPA should ensure that regional offices, as appropriate given site-specific circumstances an exigencies, consistently evaluate the availability of state cleanup programs and non-Superfund federal programs to address all or portions of NPL-eligible sites where such programs can achieve protection of human health and the environment with meaningful public involvement. EPA should (A) ensure that regional offices have knowledge and understanding of the capabilities and applicability of non-Superfund programs; (B) develop relationships with key managers in other programs, particularly federal programs, to facilitate coordination; and (C) promote greater standardization of coordinating mechanisms, particularly for large, complex sites.

There are many, many contaminated sites that require clean up. To clean up as many sites as possible, as quickly as possible will require that all levels of government use all the tools in the cleanup toolbox. Recommendation 7 calls for EPA to consider non-NPL

programs and encourage their use when they can appropriately clean up NPL-eligible sites, and to improve its coordination with other programs in three areas: information and knowledge, relationship building, and coordinating mechanisms.

Information, Knowledge and Relationship Building

EPA should ensure that accurate, up-to-date information about the strengths, weaknesses, and capabilities of other federal cleanup programs that might complement Superfund is available to the states, regions and other interested parties, along with support for regional project managers who wish to consider coordination or collaboration with such programs. This will assist regional offices in determining whether and how non-NPL programs might be appropriate for a specific site..

Similarly, other agencies' knowledge of Superfund must be improved so they can more effectively plan their activities to be complementary to Superfund cleanup objectives. EPA should identify other programs with a potential to be useful at Superfund sites, and make an effort to educate staff in EPA and in the other programs about potential opportunities for, and benefits of, working together.

EPA should explore memoranda of agreement or other arrangements with non-NPL programs to ensure that EPA can play an appropriate role in making decisions about activities that are planned for locations at or near Superfund sites.

Greater Standardization of Coordination Efforts

EPA should establish guidelines for consideration of other programs to ensure non-Superfund cleanup programs are considered at appropriate points in the listing process. Such guidelines should make clear that they are not intended to impede the discretion of EPA to list a site as soon as it determines listing is warranted, but should also emphasize the potential usefulness of non-NPL cleanup programs as a complement to the NPL.

The Subcommittee considered, but ultimately rejected, recommending a more formal mechanism for coordination, such as a "coordinating committee" to evaluate cleanup program options for all sites. Instead, for most sites, the Subcommittee favors an approach that achieves the outcomes of coordination, but leaves to EPA and its partners the responsibility of determining how to best achieve those outcomes. It seems likely that the most efficient means for EPA to accomplish the coordination outcomes recommended by the Subcommittee is through improvements to the existing regional infrastructures for coordination, rather than through establishment of a new standard, national mechanism.

The exception to this general principle is mega sites, where the Subcommittee believes that a more formal, standardized approach is warranted to ensure coordination.

The Subcommittee had extensive discussions about the exact form that this more formal, standardized approach to coordination for mega sites should take. In the end, there was a diversity of views about the "level" at which a coordinating committee should operate (e.g., national, regional, or site-specific), the individuals who should be involved in a committee, and whether a committee should serve as an information-sharing venue only or should offer non-binding recommendations.

Despite these diversities of views, the Subcommittee did reach consensus on both the need for increased, formalized coordination on large, complex sites and on a number of goals for such a coordination effort, as follows:

- Officials on a coordinating committee should work together to evaluate large, complex sites and to share and solicit information from other interested parties in a way that enables EPA to make more fully informed listing decisions.
- Coordinating committee(s) should evaluate the challenges and opportunities presented by large complex sites; ensure that other cleanup programs and funding

are appropriately considered; and provide a forum for sharing information among EPA, Tribal nations, states, officials from other programs, PRPs, site neighbors, and other affected parties.

- Coordinating committee(s) should carry out their discussions in a transparent way, and provide opportunities for involvement by officials from other programs (if they are not represented on the committee), PRPs, site neighbors, affected communities, and other interested individuals, by reaching out to these groups to share and solicit information.
- Care should be taken in chartering coordinating committees so as not to create any constraint on EPA's discretion to make NPL listing decisions. EPA alone is responsible for listing decisions, and has a responsibility to make such decisions in a timely and efficient way in light of credible site-specific data.

Special Consideration of State Programs

Virtually every state has some form of cleanup program. Many states have multiple programs, including brownfields programs, voluntary cleanup programs, property transfer programs, and state programs modeled after the federal Superfund program. State cleanup programs are an important piece of the cleanup puzzle. They serve as a complement to the national Superfund Program by providing for the cleanup of many sites that do not rise to the level of needing federal attention under Superfund and, in some cases, by overseeing cleanup sites that would be eligible for the NPL. Collectively, state programs have addressed many thousands of contaminated sites – including some NPL-eligible sites – and it is expected they will continue to do so.

Subcommittee members had very divergent views about the range of cleanup approaches, strengths, weaknesses, and capacities across state programs. Many Subcommittee members had direct experience with various state programs and believe that EPA should consider a study to evaluate the strengths and weakness of state approaches and to consider the relevance of these approaches to the federal Superfund Program. Some

potential good state practices include streamlined approval processes, use of site conceptual models, and tiered approaches for establishing site-specific, risk-based cleanup standards. Some potential concerns are that cleanup standards may be less protective than those required under CERCLA, and public involvement activities may be less rigorous. Additional information on Subcommittee member views about the potential strengths and weaknesses of state programs is provided in Appendix [number].

Leveraging Non-Superfund Program Resources

Recommendation 8: EPA should use its understanding of non-NPL programs and relationships with key managers in non-NPL programs to optimize and leverage the use of any available resources from these programs to meet EPA's obligations at NPL sites.

Activities independently undertaken by other agencies at or near NPL-sites for reasons unrelated to cleanup could have a positive effect on cleanup activities if they were properly carried out and coordinated with Superfund. EPA should work to understand the scope and level of these activities, as well as to establish and maintain contacts within these other programs, so that opportunities to leverage resources from other programs are identified early in the cleanup process and duplication of effort is avoided.

The example of how this leveraging might work most often discussed by the Subcommittee is normal dredging activities carried out by the U.S. Army Corps of Engineers. If properly carried out and coordinated with Superfund, the mobilization of people and equipment associated with these activities could serve "double duty" by also dredging or conducting other activities beneficial to a Superfund cleanup.

Another opportunity that offers high potential for collaboration with other programs, including non-federal programs, is the economic opportunities associated with re-

development of sites. EPA should make an extra effort to look for leveraging opportunities for NPL sites at or near areas being considered for re-development.

For these types of routine activities to be appropriate and to complement a Superfund cleanup, standard protocols associated with them might need to be modified, at EPA's direction, to be consistent with the requirements of the Superfund program and within the context of the rules and regulations governing Superfund.

The Agency may wish to explore memoranda of agreement or other arrangements with non-NPL programs to ensure that it can play an appropriate role in decision making about activities that are planned for locations near Superfund sites.

Building the Capacities of State and Tribal Environmental Programs

Recommendation 9: EPA should continue to invest in capacity building for state and Tribal cleanup programs.

The Subcommittee considered a great deal of information on the range of cleanup programs among the states, including the Environmental Law Institute's (ELI) Analysis of State Superfund Programs: 2001 Update. The ELI analysis is a compendium of statutes, program organization, staff, funding, cleanup standards and activities, enforcement provisions, and amount of money spent on cleanup for all 50 states.[7] Given the array of individual state capacities, and the challenges faced by state programs (e.g., declining state budgets), the Subcommittee urges EPA to continue its efforts to build the capacity of state remediation programs.

While states do not have the resources to pay for cleanup at most NPL-caliber sites, building capacity within state programs to continue to fund cleanup at smaller, lower-risk

[7] Environmental Law Institute "An Analysis of State Superfund Programs 50-State Study, 2001 Update" November 2002.

sites and to oversee PRP-lead cleanup is essential to maintaining a strong national Superfund program. Using information available in the ELI analysis, EPA should evaluate and consider ways to build capacity in states that have:

- a significant number of unaddressed or unevaluated sites;
- insufficient cleanup programs; or
- ineffective use of enforcement authorities or prevention programs.

Likewise, EPA should continue to invest in capacity building for interested Tribal nations, to enable Tribes to address more sites under their jurisdictions.

Recommendation 10: EPA should revise its regulations to enable Technical Assistance Grants to be given, where appropriate, to groups of individuals affected by NPL-eligible sites that are not listed.

Expanding the availability of technical assistance grants (TAGs) will serve to further increase the capacity of state and Tribal cleanup programs, by improving the ability of affected communities to participate in cleanup actions. CERCLA provides that the "President may make grants available to any group of individuals which may be affected by a release of threatened release at any facility which is listed on the National Priorities List under the National Contingency Plan." (42 U.S.C. 9617(e).) This provision does not preclude EPA from making such grants available to other groups. In fact, EPA regulations regarding TAGs interpret CERCLA to allow grants at sites that are not listed on the NPL but that are proposed for listing. 40 CFR 35.4020(a)(1).

The Subcommittee is not recommending that TAGs be provided for every contaminated site – this would be impossible. Rather, TAGs should be considered only for NPL-eligible sites that, but for the existence and application of another acceptable cleanup program, would need to be listed and remediated under CERCLA, for example, at sites cleaned up under the Superfund Alternative Program. In addition, TAGs for non-listed

sites should be available only when TAG funding exceeds requests for TAGs at listed sites.

How Should EPA Set Priorities Among Listed Sites?

The continuing short-fall of resources available at the remedial action phase of cleanup creates continuing pressure on the Agency to fund certain activities and leave other contaminated areas unaddressed. In this context, the Subcommittee makes one recommendation on setting priorities among listed sites.

Recommendation 11: EPA should prioritize funding for listed sites using a rigorous and transparent process. Prioritization should be based upon threats to humans and the environment, taking into consideration socio economic and program management factors, as described below.

Any site listed on the NPL is by definition a national priority, and should be investigated and cleaned up in a timely fashion. Prioritizing among such sites creates an impossible choice, as the selection of any site or activity for action may mean another site will not receive resources in the same timeframe and may remain a threat to human health and the environment. In this situation, the Agency faces tough, value-laden choices and difficult policy questions.

In the abstract, these questions include among many others: Is it more important to fund an activity that addresses an ongoing health threat to one family or an activity that would prevent further contamination of a sensitive ecosystem or resource, such as a potable water supply? Does it matter if the health threat is acute or chronic, or if the sensitive ecosystem is home to endangered species? How many families does it take to be more important than one ecosystem? How large or important must an ecosystem be to be a higher priority than one neighborhood? The only responsible answer is that they are all are important. The Subcommittee was unable and unwilling to recommend a specific

system that would prejudge what must continue to be very difficult choices that can be made only after a thoughtful, well-informed evaluation of site-specific data.

At the same time, the Subcommittee recognizes the practical reality that under any likely funding scenario, and difficult as it may be, EPA will continue to have to set priorities for spending at NPL sites. The Subcommittee therefore offers the following principles to guide this process.

- The primary question EPA should evaluate when considering priorities for funding is "What is the consequence of delaying remedial action?" While this question may be implied in EPA's current prioritization process, the Subcommittee believes it is necessary for the Agency to consider it explicitly, and weigh the consequences thoughtfully at each site. In some cases, such implications could be on-going unacceptable risks or that existing remedial designs may become outdated and need to be redone. In others, delay could result in migration and vastly greater and more significant contaminated natural resources, and greater risks to future populations who should be afforded equal protection as that provided current exposed populations. It could also result in differing degrees of remediation depending on the particulars of the site and remedy, since parceling and delay of remedies means increased costs and therefore fewer resources available to address other sites. It also could mean greater costs to society as a whole. All of these implications must be considered in deciding priorities.
- Prioritization should be carried out remedial action by remedial action. EPA's current practice is to prioritize remedial actions, not entire releases or sites. Thus, one remedial action at one site may rank as a high priority and be provided with funding while others at the same site wait for later funding cycles. The Subcommittee concurs with this practice, which can be particularly important at large, complex sites with discrete remedial activities.

- Any prioritization should be conducted with meaningful participation by affected stakeholders, who should be consulted regarding the considerations that should cause prioritization of their site, the conclusions reached based upon input provided, and any ultimate prioritization decisions.
- Setting priorities is about deciding which remedial actions to fund first. It is not about re-defining cleanup outcomes. All NPL listed sites must be cleaned up so that humans and the environment are fully protected as required by law. Even the lowest priority NPL site must still be cleaned up in a reasonable timeframe.
- Considerations for setting priorities for remedial actions may differ from those applied to removals. For example, a removal action to provide an alternate water supply to individuals currently exposed to significantly elevated levels of contamination may be a very high priority for the removal program. However, the restoration of the contaminated aquifer may rank lower than prophylactic or other remedial measures that could be taken elsewhere where exposure pathways cannot be intercepted.
- No prioritization process should assume its outcome. While as a practical matter it may be rare that threats to a sensitive ecosystem would be given a higher priority than ongoing threats to humans, such an outcome is possible, depending upon the facts presented.

In the context of these general principles, the Subcommittee endorses two tiers of factors to be considered when EPA is setting priorities for funding. Tier 1 represents primary factors, those most closely related to threats to humans and the environment. Tier 2 represents secondary factors, largely associated with socio economic issues and program management concerns. The Subcommittee reiterates for emphasis that while the tiers represent a sense of the relative importance of the factors in informing priority-setting decisions, on a site-by-site basis any factor from either tier could legitimately drive EPA's decision. For example, an opportunity to leverage significant resources from another program might cause EPA to move forward on a site sooner than it would have otherwise if such an opportunity did not exist. Priority setting is not a science. The most

critical factor for success will be EPA's ability to bring good judgment and common sense to bear on what will remain very difficult choices.

Tier 1: Factors Related to Threats to Humans and Significant Environments

Human Receptors

- Threats to human population exposed: including population size and proximity to contaminants.
- Likelihood of exposure if no remedial action is taken: including stability of contaminants, reliability of any containment structures, and effectiveness of any institutional or physical controls.
- Nature of likely exposure: acute or chronic.
- Sensitive receptors or exposure pathways: such as those that may be associated with or exacerbated by traditional lifestyles or environmental justice concerns.
- Contaminant toxicity: including inherent toxicity, volume, and contaminant concentrations.

Significant Environments

- Threats to ecological receptors: such as threatened or endangered species and their critical habitats, keystone species, migratory birds, amphibians, fisheries, and other sensitive ecological receptors.
- Threats to environmental receptors: including ground-water aquifers and other significant natural resources.

Tier 2: Factors Related to Program Management

- Cultural and socio-economic factors: including environmental justice and site reuse potential to improve local communities. At sites that affect Tribal interests, these factors include treaties, statutory requirements (e.g., American Indian Religious Freedom Act) and trust responsibilities.

- Source control: remedial actions that result in control of ongoing sources of contamination are particularly important because of their potential to reduce overall cleanup burdens and costs.
- Maintaining a strong enforcement presence: one of the benefits of the Superfund Program is that the mere possibility of a Superfund action may prompt responsible parties to initiate and fund clean ups, reducing burdens on the limited public funding available. Because these clean ups are often initiated and then overseen under state environmental remediation programs, a strong, vital Superfund program is also important in maintaining strong, vital state programs. For this benefit to continue, the threat of Superfund action must continue to be real. Consideration of this factor may cause EPA to elevate the priority of sites that, based strictly on an evaluation of threats, might present less concern than other sites.
- Short- and long-term implications: A focus on controlling sources and addressing current human exposures does not obviate the need to address other risks and remaining contaminants. On a site-by-site basis, taking more time to complete each site investigation and cleanup will increase overall site costs and increase social and opportunity costs to communities, which must longer tolerate contaminated sites even though they are not experiencing current exposures. This overall cost increase at individual sites and in individual communities must be balanced against the dilemma that, particularly in a climate of limited resources, the costs of failing to adequately address current exposures and ongoing sources at all sites may result in the growth of both adverse human health impacts and cleanup cost. In some cases, the cost savings of rapid action may be dramatic, if it prevents migration of contamination to, for example, additional media, cultural resources, additional receptors, or sensitive ecosystems. Evaluations of short- and long-term implications should consider life-cycle costs related to implementation versus postponement of planned activities, and any cost savings that might be achieved by reduction in routine management costs associated with maintenance of interim actions or other controls that might be instituted in advance of cleanup.

- Minimizing costs associated with mobilization and demobilization for clean up: cleanup strategies should maximize the use of skilled and knowledgeable workers, labs, cleanup contractors and managers with institutional memory. Work flow logic in connection with other planned or ongoing activities should also be considered.
- Making meaningful progress in all communities: with a particular emphasis on communities that have been disproportionately affected by environmental contamination.
- Leveraging activities already funded or have the potential to be funded by other programs. The ability to leverage funding associated with other programs or activities might justify the assignment of a higher priority to a site because it could lower overall costs.
- Advancing knowledge of innovative treatment technologies: the development and implementation of new technologies at one or more sites could pave the way to wider use and greater cost savings at other sites with similar contamination.
- Support for cleanup: from affected communities and from state and local governments and Tribal governments.

In large part, the factors described above are drawn from EPA's current priority-setting practice, as outlined in the guidance memo "Remedial Action Priority Setting" (January 19, 1996), with additional specificity and detail recommended by the Subcommittee.[8] The Subcommittee anticipates that implementing a process that considers these factors will require EPA to make some changes, but in general will not radically alter the Agency's current procedures. The exception is that EPA must create more openness and transparency around decisions about Superfund funding. The current prioritization process seems to occur entirely within EPA – without opportunities for input even from the Agency's co-regulators in state environmental agencies and Tribal governments.

[8] This guidance is also applied to decisions about removal actions where costs are estimated to exceed [number]. The Subcommittee did not debate priority setting for removal actions. To the extent that the Agency continues this practice, it should consider the same principles and factors it recommends for fund-lead remedial actions in Recommendation 11.

Without prescribing a specific process that EPA should use to increase the transparency of priority setting decisions, the Subcommittee emphasizes that these difficult choices and their implications should be discussed openly.

Setting Priorities at Other Stages in the Pipeline

Recommendation 11 addresses prioritization among remedial actions. The Subcommittee also discussed, but did not fully resolve, issues associated with other points in the cleanup pipeline at which EPA should set priorities. In general the outcome of these discussions was an acknowledgement that EPA should be encouraged to look at the full range of its site-specific activities in any given year when setting priorities, with the most formal priority setting occurring for the most expensive activities (i.e., remedial actions). This emphasis is not intended to diminish the importance of robust funding for other pipeline activities. In particular, EPA must continue to fund remedial investigations and feasibility studies and other necessary site characterization activities at newly listed sites, so that the Agency will have more complete information upon which to base subsequent priority-setting decisions.

Should EPA Reallocate Resources? If So How?

The Subcommittee recognizes that, due to a current backlog in fund-lead remedial actions, continuing level funding for the Superfund Program is likely to adversely impact the ability of the Program to manage all of the sites that are currently listed on the NPL and newly listed sites in an optimum fashion. Thus, the Subcommittee believes that there should be consideration of an increase in the annual appropriation for the Program that would be used specifically for fund-lead and orphan-share remedial actions at sites listed on the NPL. It is critical that this recommended increase in appropriates, if made, be used by EPA to result in a net increase in funding for remedial actions at NPL sites. (See chapter VI, Recommendation A.)

The Subcommittee recommendation on a limited, targeted increase in appropriations notwithstanding, whether or not additional funds are ever appropriated for the Superfund Program, it is critical for EPA to do everything it can to control its own destiny by making the Superfund Program a model of efficiency in spending the human and financial resources it is given.

The Subcommittee recommendations on allocating resources are intended to help the Agency identify and capitalize on potential efficiencies. Recommendation 12 emphasizes that EPA should maximize the amount of CERCLA resources devoted to actual, on-the-ground cleanup activities. Recommendations 13 and 14 describe specific evaluations the Agency should undertake or practices it should institute to improve efficiency.

Recommendation 12: EPA should spend a higher percentage of the Superfund budget for on-the-ground cleanup activities.

Regardless of what the annual Superfund budget is, a higher percentage of the money should be allocated to on-the-ground cleanup activities. Although the Subcommittee was unable to agree on a precise definition of "on-the-ground cleanup" (some members thought the definition should be limited to extramural spending for remedial actions, others for removals, remedial actions, and long-term response actions, and others thought it should include site characterization and other pipeline activities that are necessary to support remedy selection and implementation), all members agreed that work directly related to improving conditions at actual sites should be the overriding focus of the Superfund program and should be the lens through which the Agency views all its spending decisions. Program management and other activities should serve the mission of improving conditions at actual sites – not the other way around.

Recommendations 13 and 14 on evaluating efficiencies and other improvements are designed to help EPA identify what it can legitimately do less of in order to do more

work in the field. However, EPA should not wait until the recommended independent third-party audit is complete before taking action. The Agency should immediately make every effort to reduce overhead and carefully control Superfund expenditures, both in and outside of Office of Solid Waste and Emergency Response. EPA should make immediate efforts to assess the allocation of Superfund supported staff across the Agency, and should make changes to direct more staff resources to site-specific activities, where appropriate. Finally, the Agency should seriously reconsider its practice of covering budget shortfalls created by cost of living increases in federal salaries by reducing the extramural funding available to pay for cleanup. Instead, the Agency should first attempt to make up these shortfalls by gaining efficiencies in Program administration. On balance, it may be better to tolerate longer timeframes for some administrative activities than to tolerate the longer clean up timeframes (and increased clean up costs) that result from EPA's inability to fully fund all remedial actions in every funding cycle.

Recommendation 13: EPA should commission a neutral, independent auditor to carry out an open, top-to-bottom, comprehensive audit of all activities paid for with Superfund monies to (A) document how these funds are being expended today and areas where expenditures are growing or declining on a percentage basis, and (B) identify options for increasing operational or other efficiencies, or reallocating funds and other resources (i.e., both intramural and extramural), so as to increase the percentage of the Superfund appropriation that is spent for on-the-ground cleanup activities.

Resources available to the Superfund Program should be used as efficiently and effectively as possible; ideally the Program should be a model of efficiency in government spending. Over time, increases in efficiency will both increase the resources available to EPA to direct towards on-the-ground cleanup activities (see Recommendation 12), and may increase the trust that Program overseers and others have in the ability of the Superfund Program to spend money wisely.

Although the Subcommittee was briefed extensively by EPA officials on the Superfund budget and the Agency's spending, and found this information critical to its understanding of the Superfund Program, it had neither the time, expertise, or charge to undertake the type of in-depth budget and spending assessment contemplated by Recommendation 13. The Subcommittee also does not believe that EPA would be best served by attempting to undertake such an evaluation on its own or through a firm that is financially dependent on the Superfund Program. A neutral, independent, third party, familiar with the Superfund Program and budget, should be commissioned to undertake this evaluation, supported by Agency staff. To further the evaluation, EPA should ensure that the independent third party makes a draft of the efficiencies assessment available for public review and comment and, as appropriate, incorporates public comments into the final assessment.

The Subcommittee is making a related recommendation in chapter V. Recommendation 17 calls for EPA to be evaluated on transparent and accurate program tracking information by preparing performance profiles. Adherence with Recommendation 17, coupled with the independent audit called for in Recommendation 13, will be valuable to the Agency in tracking and improving program performance.

Identifying and Testing Contract Reform Initiatives

Recommendation 14: EPA should explore the experience of other agencies and the private sector with cost-saving contract reforms to ensure that resources devoted to on-the-ground cleanup activities are spent wisely and efficiently. Based on this exploration, EPA should identify and pilot test a number of contract reform initiatives, including, if appropriate, guaranteed, fixed-price remediation contracts; indefinite quantity contracts with guaranteed minimums; incentive based contracting and requirements contracts.

A significant portion of the Superfund budget, particularly the budget for site assessments and remedial actions, is spent through contracts, referred to by EPA as "extramural" spending. Because of the important role that contracting plays in the overall Superfund budget and, in particular to the budget for on-the-ground cleanup activities, EPA must explore and capitalize on opportunities to improve its contracting practices.

The Subcommittee identified a number of potential contracting reforms that EPA might explore, many of which have been used by other federal agencies, such as the Departments of Defense and Energy. EPA should work with these agencies to understand their experience with contracting reforms and use this information to improve EPA's testing of contract reforms. In spite of the challenges noted with each of these contracting options, there is merit to EPA's seriously considering then and other options.

Guaranteed Fixed Price Remediation (GFPR) contracts have been used by other federal agencies to procure services for cleanup work. GFPR contracts require the contractor to complete cleanup activities (including approval by the overseeing regulatory agency) at a guaranteed price by a date certain. The guarantees are supported by combinations of corporate guarantees and third-party financial instruments such as insurance policies.

In cases where insurance instruments have been used, the government, by its own estimates, has experienced faster completion times and substantially reduced costs in both direct and indirect costs. This has occurred because the contracts are structured to create economic incentives and penalties that are very motivating to the contractors, and using insurance provides a market-based quality assurance/quality control mechanism for a fixed price—as well as a financial assurance mechanism. In this way, both cost overruns and costs to manage the program are reduced because much of those costs and risks have been assumed by the private sector as part of the contract. However, to achieve such benefits, funding must occur up front. (For more information, see Appendix E.).

Because up-front funding is needed, GFPR contracts may be most difficult to use where they would create the greatest value—for large cleanups—unless significant provisions related to future funding failures could be added to the contract. These provisions differ from traditional termination for convenience terms. Guarantees may be void where work is stopped mid-way, since the delay of projects often actually causes cost overruns. GFPR contracts also may be difficult to use at sites where cleanup will be particularly complicated, making cleanup approaches (and costs) particularly difficult to predict and easier to use at sites where the remedial technology employed is low risk or routine.

Indefinite quantity contracts with guaranteed minimums can be let for any kind of service and are regularly used by the U.S. Army Corps of Engineers to obtain volume discounts. The contracts typically require unit prices, such as hourly rates or volume- or quantity-based price declarations. The key to making such contracts result in cost savings is geographical aggregation. If a contractor can avoid mobilization costs for people or equipment, substantial savings can be realized. For waste disposal contracts, guaranteed flow into a site permits better planning and cost efficiencies to occur. Unfortunately, the geographical aggregation requirements run headlong into the political requirements or expectation that Superfund funds be spread across the country so as not to concentrate or limit the benefit to one locality or region. Further, as with GFPR contracts, these contracts require both the Agency and the contractor to perform. Unlike traditional time-and-materials contracts, if the Agency were to cancel early before minimums were achieved, cost savings may be lost.

Requirements contracts, in which the Agency promises all of the particular type of work to one provider might be explored where the work to be performed could be carried out primarily at the offices of the provider. For NPL sites, this might include certain specialty data analyses or types of assessment. Again, purchasing work in volume should beget a discount to permit the Agency to do more with less.

IV. Mega Sites

The Subcommittee was specifically charged with considering and providing recommendations related to management of large, complex and costly cleanups, often referred to a mega sites. Subcommittee members had very divergent views about the implications of mega sites for the Superfund Program. As a result, this chapter of the report presents both consensus recommendations and briefly describes Subcommittee members' contrasting views about what would be the best overall approach to resolving the difficult questions raised by very expensive cleanups. In addition, these contrasting views are more fully described in Appendix [number].

Defining and Characterizing Mega Sites

The Subcommittee discussed what the most appropriate approach to delineating the mega site universe and generally agreed that a monetary limit can serve as a practical surrogate for complexity. The current $50 million or greater mega site definition was seen by some members an appropriate definition; others argued for a higher trigger, such as $90 or $100 million. In either case, Subcommittee members agreed that while a monetary definition can serve as a practical way to categorize a group of sites that merit special attention, it is more important that the Agency have a thorough understanding of the complexity of these sites since it is these complexities that likely are driving site costs. During the course of the Subcommittee's deliberations they identified a number of site factors or circumstances that may contribute to overall site complexity and cost including:

- Large geographic area
- Scientific and technical complexity
- Administrative complexity
- High-risk waste management activities (e.g., recycling)
- Liability exemptions (e.g., recycling)
- Site type (e.g., mining)
- Media type (e.g., sediments)

- Specific issues in specific regions (e.g., sediments in EPA region 10)
- Tribal communities and other communities where traditional or religious practices involve use of natural resources
- Multiple discrete sources of contamination
- Future risks
- Impacts on multiple communities
- Financial status of PRPs

As the following management recommendations indicate, it is critical that EPA build its capacity to manage these parameters of complexity in the most effective and efficient ways possible to improve the speed and efficiency of cleanups at mega sites. Once a site is designated as a mega site (regardless of what monetary definition is used), it is very important that the EPA be able to marshal the appropriate expertise and management experience to determine how the risks posed by the site are best addressed.

In response to the Subcommittee's charge, an ad hoc site types work group was established to identify important issues and to discuss possible options and recommendations. Members of this work group and other members of the Subcommittee considered in depth the difficult policy questions raised by mega sites and explored various broad policy-level options for the management of large, complex and costly sites. Some of the difficult questions the members grappled with included:

- If there are funding constraints affecting fund-lead sites, should fewer sites be cleaned up or should there be a focus on reducing immediate risks only, allowing more total sites to be addressed?

- Should expensive sites be left off of the NPL? Should some subset be left off?

- If some or all mega sites are not addressed by the Superfund Program, where would they be addressed? What existing programs have the funding/resources/experience to deal with sites of this magnitude? What are the ensuing implications (e.g., appropriations, liability)? What programs are available that will adequately protect human health and the environment and effectively involve affected communities at these sites?

The Subcommittee was unable to reach agreement on a preferred option for how best to resolve these questions. Individual Subcommittee member views are discussed later in this chapter and are described more fully in Appendix [number]. The Subcommittee was, however, able to reach agreement on the following set of management recommendations, which they believe can help improve the manner in which mega sites are addressed by the Agency.

Recommendations on Management of Mega Sites

While the Subcommittee is not presenting a consensus view regarding a preferred options for managing mega sites, there was agreement that large, costly sites deserve special management consideration and attention. Recommendation 13 advises EPA to bring focused and sustained management attention to mega sites and gives a number of examples of the types of attention that would be the most useful. Recommendation 14 describes a specific set of factors that EPA should consider when deciding how to address a large geographic areas with multiple contaminant sources.

In addition, the Subcommittee reiterates its expectation that the recommendations on listing and management of NPL sites, described in chapter III, will be applied equally to mega sites and potential mega sites. In particular, Recommendation 3 addresses the importance of outreach to and involvement of affected communities, PRPs, and others early in the site assessment process (i.e., well before a listing decisions is made) and Recommendation 7 addresses strengthening coordinative mechanisms among EPA and

other cleanup programs and advises establishment of formal coordinating committees for large, complex sites.

Recommendation 15: EPA should establish practices that result in mega sites receiving the necessary resources and attention from senior Agency managers.

While all Superfund sites present management challenges, mega sites, by definition, present complexities that are at a greater scale, and thus deserve special management attention. In the private sector, it is common for very expensive projects to be governed by special forms of project management and receive greater attention from management. In recognition of the fact that mega sites tend to remain on the NPL for long periods of time and their high costs can have important impacts on the Superfund budget, EPA should apply some of these special management techniques to mega sites, as follows.

First, the Agency should ensure that the project managers assigned to mega sites have the appropriate experience and expertise to manage that type and level of project. The challenges associated with managing a large, complex, expensive, multi-year project are significant. More experienced remedial project managers may be best suited to meet such challenges. These seasoned staff should be familiar with sites around the country or region, and may have better awareness of cost-effective, reliable approaches and construction management strategies, this depth of experience is important for a large, complex site, where a newer less experienced project manager might be more hesitant to make decisions or more easily overwhelmed. The most important skills for mega site project managers are management skills. The technical, financial and other types of expertise needed can be provided by other professionals who support the project manager.

In addition, EPA should consider the benefits that are typically associated with stability in the project manager assignment when making decisions about changing or reassigning mega site project managers. A number of Subcommittee members have experienced multiple consecutive project mangers at a single site in a short period of time. These

changes can cause delays in cleanup as new project managers must become familiar with the site history, stakeholders, and cleanup approaches. The more complex a site, the steeper this learning curve.

Second, EPA should provide project managers with the support systems that they need. Mega site project managers will need access to specialized expertise to assist them in overseeing a complex, expensive, multi-year cleanup. In particular, experts in technical disciplines relevant to the site in question and experts in practices such as cost engineering and multi-year funding will be needed. The Subcommittee emphasizes in particular the potential usefulness of cost engineering, a practice commonly used in the private sector and by other government agencies, including the Department of Energy. The focus of cost engineering is use of the right tools, systems, and training to develop credible cost estimates and life cycle costs to assist in decision-making for large, complex projects. Benefits can include increased accuracy of costs estimates, improved accountability, and improved management.

Third, the Agency must apply sustained management attention to large, complex sites. These sites have the potential to consume a large amount of human resources, as well as financial resources. ,It is important to keep strong management attention focused on them to ensure that cleanup occurs at a predictable and steady pace. OSWER's "teenager site" review is an example of how EPA might use Headquarters' active management involvement to mega sites. The OSWER teenager site analysis has brought national attention and expertise to the difficult problem of cleanups (many of them at mega sites) that are taking more than [number] years to complete. In addition to improving the management of mega sites, management initiatives such as the teenage site review have the potential to improve progress at non-mega sites too.

Finally, EPA should create specific centers of excellence within the Agency and, where appropriate calling on experts outside the Agency. These centers should connect individuals that possess an understanding of some of the common characteristics of expensive sites such as sediment issues or issues related to sites located in Tribal or other

communities where traditional practices involve use of natural resources. Centers of excellence should act as clearinghouses for information on successful approaches to addressing such complexities and lessons learned, so that project managers for sites with these characteristics can learn from and support one another.

Care should be taken not to interpret this recommendation as a call for a different technical process or for different cleanup standards for mega sites. This recommendation calls for improving EPA's management of the cleanup process – not changing cleanup outcomes.

[Discussion of an ESI/RI moved to the supporting text for Recommendation 3, in the NPL section.]

Recommendation16: When considering whether or not to address large, geographic areas as smaller units, EPA should apply the factors described below.

Large geographic areas with multiple contamination sources are generally associated with high clean up and transaction costs as well as extended process timelines. This is particularly the case where contamination is discontinuously distributed so that there are large areas of relatively low-level contamination between "hotspots" or where multiple, geographically distinct, unrelated sources of contamination are present. The likely significant investments required by such areas justify heightened attention to initial decisions concerning the scope of a listing, if any, and subsequent decisions regarding project management if such sites are listed.

Although the number of such sites currently on the NPL may be very small, and based on Subcommittee members' experience appear to be largely aquatic sites that cover entire urban bays and industrial waterways, the risk of process-related costs ballooning at these sites is high, as is the risk of protracted remediation timelines.

In exercising its discretion to list sites on the NPL, EPA considers the best way to address large, complicated geographic areas – whether they are best addressed as one "site" or in smaller units more closely tied to specific hazardous substance releases. If EPA decides to list some or all of a large geographic area, options include listing the entire area of concern as one NPL site; dividing the area into separate NPL sites tied to specific sources of contamination, responsible parties or other considerations; or listing some releases or portions of releases and leaving others to be addressed by other programs such as the Superfund removal program or a non-Superfund program such as the RCRA corrective action program. In Recommendation 3, the Subcommittee recommends that EPA consider and gain input on these options (and other issues) as part of involving stakeholders early in the site assessment process, before listing decisions are made. Recommendation 14 describes a set of factors that EPA should consider when ultimately making such decisions for large geographic areas.

Factors to be Considered

The Subcommittee recommends these factors for consideration specifically at large geographic areas with multiple, discrete contamination sources. They should be considered in addition to the more general set of questions recommended by the Subcommittee for consideration during all NPL listings (see Recommendation 1).

- Investigating and cleaning up some or all of a large geographic area, particularly one that is highly populated, inherently brings in a large number of parties, generates high transaction costs, and extends cleanup timeframes. EPA should consider whether or not the anticipated total transaction costs associated with evaluation and cleanup of the area, or transaction costs to certain PRPs or other stakeholders, could be reduced and overall cleanup improved or expedited by dividing large geographic areas into smaller units. On the one hand, there may be economies of scale, improved understanding of the inter-relationships of the technical and legal aspects of the site, and consistency gains that could be realized by listing a large geographic area as a single NPL site. On the other hand,

addressing a large geographic area in smaller units, either by separate NPL listings or application of other programs as discussed above, may simplify and streamline investigations and cleanups, reduce transaction costs, and allow remedies to be identified and implemented more quickly.

- Listing one large geographic area provides local communities with a unified basis for participation in the evaluation and cleanup of all the contaminant hotspots in an area. Listing the entire area also brings into play the public involvement advantages that come with a Superfund listing, including technical assistance grants to local communities. These factors should be weighed along with potential efficiency gains (and simplicity for the community) from more directly addressing individual hotspots and clusters of hotspots within the area.
- Whether sources of contamination, although disparate, are integrated in human or environmental receptors and how that integration, if it exists, would best be addressed.
- Whether hotspots or contaminants are likely to shift, particular in dynamic aquatic systems, and how to best address that possibility.

[Discussion of coordinating committee for mega sites moved to the NPL section of the report, see draft recommendation 7.]

Additional Views Regarding Mega Sites

While the Subcommittee supports the above management recommendations, it is important to recognize that due to the wide diversity of stakeholders on the Subcommittee there were fundamentally different views regarding the overall manner in which mega sites should be managed. Some participants believe that implementation of these recommendations alone will not satisfactorily address the need to more effectively manage mega sites given existing financial realities.

NOTE: While some members indicated they were supportive of the inclusion in the report of revised version of the "mega site scenarios" that were included in the last

draft of the report, other Subcommittee members have expressed concerns regarding them and have indicated they do not want them included. It is also clear that not all members believe the management recommendations will be adequate to address the mega site issue and they would like to express other views. Therefore, at the meeting, we will need to discuss how best to articulate those differences.

For this draft, we have included short paragraphs describing two of the perspectives that have been expressed in the past that were not captured by the inclusion of the NPL (Section III) and management recommendations above. Readers should be aware that these two views are NOT presented as options supported by the Subcommittee, but as perspectives of some members that will be discussed further at the upcoming (February 11-12) meeting.

Superfund as a last resort for mega sites

EPA should make difficult decisions regarding resource allocation and the NPL budget should be used more broadly to address more sites on the NPL, spreading the dollars as far as possible to reach the maximum number of communities and problems. A Federal/State task force should be convened to oversee an intensive initial assessment of a potential mega site and the attendant risks. The Task Force would actively explore a variety of funding options for all or part of the site, with an initial focus on PRP-funded cleanups and the use of non-CERCLA programs to help finance cleanups. Superfund dollars would be used only if needed to address those portions of a mega site that pose a serious and immediate risk to human health or the environment and for which no other funding options are available. The long term management of mega sites would be addressed under other state and federal programs that are better designed to handle long term investigation, remediation, and maintenance. Additional funding could be provided to these programs to build their capacity to manage these types of sites.

Emphasize prevention and use Superfund more aggressively for mega sites

As an alternative, other members advocate that EPA more aggressively prevent and clean up mega sites by stepping-up prevention, enforcement, and coordination activities. These members advocate for preventing sites through EPA implementing section 108(b) of Superfund and, additionally, analyzing industries that may create mega sites and targeting high- and medium-risk industries for expanded pollution prevention initiatives. They also propose to strengthen Superfund's proven capacity to clean up mega sites by redoubling enforcement activities at mega site, utilizing expert input through formal and informal communications during cleanups, and reauthorizing Superfund's "polluter pays" fees, and increasing Program authorization and appropriations, consistent with the need to protect public health and environmental quality at the nation's worst toxic waste sites.

DRAFT

V. Measuring Program Progress

The Subcommittee was charged with developing recommendations for EPA on better ways to measure the progress of the Superfund Program. The Subcommittee focused the recommendations in this Section on how the Program can improve the way it captures and communicates performance on both national and site-specific levels. These ideas are presented as recommendations and guidelines for implementation and policy considerations. In some cases, the Subcommittee members had divergent views about what should be measured, how the Program should be measured and for what purpose. As a result, a range of views is described in addition to the consensus recommendations. This section (1) provides background and context for the Subcommittee's opinions about measuring the progress of the Superfund Program, (2) presents a primary set of goals upon which to measure the overall Program at a national level, (3) describes additional measures of progress that can be used to indicate how the Program is working and (4) addresses coordination with states, Tribes and communities as critical factors of the Program's progress.

Background and Context

The discussion of measuring the progress of the Superfund Program needs to be linked to the purpose and goals of the Program. In 1980, Congress passed the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) to increase federal authority to respond to releases or threatened releases of hazardous substances that may endanger public health or welfare and the environment. Thus, it is clear that measurements of Superfund Program progress should include metrics that assess the level of protection of human health and the environment being achieved by the Program. In addition, as requested by the EPA Administrator, the question of Program performance also was evaluated. Comments on measures that can be considered to identify both the performance and the progress of the Superfund Program are included in this Section.

Using Construction Completions to Measure Progress

Over approximately the past eight years,[1] the key measure of progress used by EPA for sites on the National Priorities List (NPL) has been the number of *construction completions* by site each year. EPA defines construction completion as "a benchmark used to show that all significant construction activity has been completed, even though additional remediation may be needed for all cleanup goals to be met[2]"

The date a site reaches construction completion remains a principal concern of affected communities. It is an important primary indicator for public reporting because it is straightforward and objectively verifiable. It remains a primary concern of affected communities and provides an indication of progress toward meeting primary cleanup goals of the Program.

Nevertheless, focusing solely on construction completion to gauge Program progress has numerous limitations. For example, it reflects the outcome of only the construction phase and does not account for the years of site investigation, analysis, decision making, site remediation and other interim progress or operations and maintenance that occur at NPL sites. Additionally, construction completion neither measures nor characterizes the impacts of cleanup efforts on human health and the environment. Thus, it fails to capture the increasing degrees of human health and environmental protection obtained at different stages of cleanup.

As noted earlier in this report, with the passage of time, a higher proportion of sites that formerly have been cleaned up under Superfund are being addressed under state and voluntary action programs. Therefore, the Superfund Program today is rarely able to score construction completions for simple sites. This does not mean that construction completion is a bad measure of progress, but the dynamics surrounding it have gradually evolved with the maturation of state and voluntary action programs.

[1] Reported by EPA in the Charge to the NACEPT Superfund Subcommittee
[2] *2003-2008 EPA Strategic Plan: Direction for the Future,* U.S. Environmental Protection Agency, September 30, 2003, pre-publication copy.

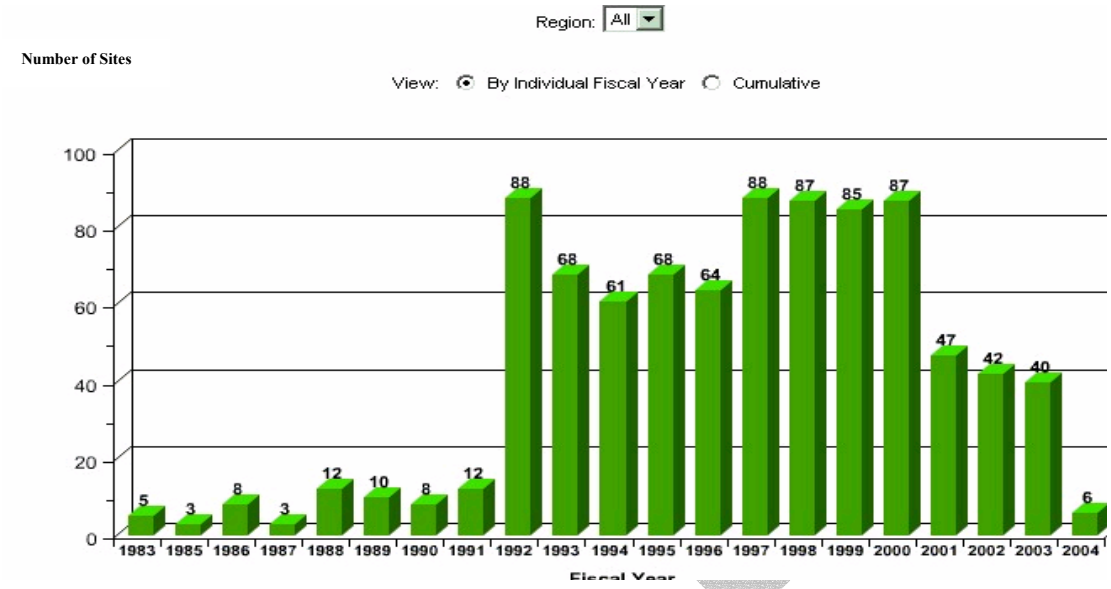
Construction completions are currently reported by EPA at the site-wide level only. Many sites have more than one operable unit (OU), and each goes through a number of evaluations of and modifications to its physical condition to protect the surrounding population and environment. The incremental progress made at an individual OU is not reflected in a single, site-wide metric.

Finally, reporting based solely on the number of construction completions does not indicate the size, complexity and cost of the respective sites, rendering a half million dollar site cleanup indistinguishable from a half billion dollar site cleanup. This issue was raised by the Subcommittee in particular with respect to mega sites which can take many years to clean up, have multiple OU's and require tens or hundreds of millions of dollars to complete construction.

Figure 4-1[3] summarizes the number of construction completions of nonfederal sites by year. Figure 4-1 indicates that the annual rate of construction completions has varied over time. The spikes and dips in the figure reflect changes in the size and complexity of sites in response actions in any given year and the smaller number of non-construction complete sites remaining on the NPL. However, they do not correspond to shifts in the Superfund Program's overall level of effort or spending.[4]. The 1991 -92 spike from 12 to 88 construction completions is considered an artifact of an administrative and accounting function[5]. As a result of its formalization of an official definition of the term *construction completion*, the Agency was able to identify many cases where a relatively small amount of work would complete the major site construction effort. This resulted in EPA's counting these sites as construction completions.

[3] Revised version provided to the Subcommittee by EPA via email 1/20/04
[4] Reported by the Agency as an explanation of Figure X to the Subcommittee in its November 2003 meeting.
[5] The term construction complete was codified in the NCP Federal Register notice of March 8, 1990.

Figure 4-1: Superfund Construction Completions by Fiscal Year



Focusing on Measures to Compliment and Strengthen Construction Completions

The Subcommittee focused on how the Superfund Program can improve the way it captures and communicates progress on a national and site-specific levels by exploring measures that would supplement "construction completion" and would more comprehensively reflect significant milestones in protecting human health and the environment at Superfund sites. In doing so, the Subcommittee provided feedback to the Agency on its efforts to develop additional measures of progress as applied to NPL sites. Thus, the recommendations in this chapter do not imply any conclusions about the measurement of other cleanup programs or strategies at sites outside of the NPL (such as the Superfund Alternatives Strategy).

Based on its evaluation of current Agency efforts, the Subcommittee concluded that EPA is making significant improvements in its mechanisms for comprehensively measuring the effectiveness of the Superfund Program on a national and site-specific level (although some of the new measures have not yet been adopted). The direction of these efforts addresses the limitations of construction completions noted above. In addition, the efforts represent broad, straightforward and factual characterizations of progress in the

remedial program. Nevertheless, the Subcommittee observed that while the Agency's efforts reflect improvement, they do not reflect human health and environmental outcomes in the direct way that occurs in the Clean Air and Clean Water programs. Superfund's site-specific nature and complexity make the development and applicability of such direct measures of improvement to human health and the environment extremely difficult.

Understanding the Significance of Various Types of Measures

The Subcommittee discussed the significance of the many possible types of measures of progress for the Superfund Program. For example, there are measures that relate to cleanup progress (e.g. reducing hazards); overall Program performance (e.g. efficient use of resources); and Program management (e.g. coordination with the public, Tribes, and state and local governments). Different measures are required for different purposes. A measure of progress should be meaningful to EPA and state program managers, members of Congress, regulators, stakeholders, and other parties using that measure. Performance measures for the Superfund Program should inform the decision making process and those responsible for and affected by the Program in order to make better decisions on a site-specific, regional and national level.

The Subcommittee discussed the importance of applying measures to the Superfund Program that would address critical aspects of a well functioning and effective federal program. The goals of such measures include: (1) budget transparency – that is, how dollars are being used in the Superfund Program, and (2) general Program tracking – ensuring that needed information about the Program is reliable and readily accessible. Current EPA data systems do not adequately and accurately capture a number of areas, such as site activities, site risks, contamination, costs (to EPA, PRPs, and states), and remedy effectiveness. Suggestions about data and Program tracking are also discussed in the NPL section of this report (Section II) with respect to the development of an annual report.

The Subcommittee discussed the value of qualitative and quantitative measures. Historically, government reporting of progress in various programs has been biased in favor of quantitative measures because they are perceived as easier to count and easier to report. Critics claim this tendency for "bean counting" offers clear numbers but these numbers do not accurately represent a complex program such as the Superfund Program. The Subcommittee discussed the value of qualitative measures to better understand and set the context for quantitative measures of a complex program like Superfund. It also recognized that the Agency is in the process of developing more sophisticated means of collecting quantitative and qualitative data about the Superfund Program that in combination would allow for more comprehensive reporting.

The Subcommittee also recognized the respective value of and need for both outcome and output measures. *Outcomes* are an assessment of the results of a program activity compared to its intended purpose. *Outputs* are a tabulation, calculation, or recording of activity or effort expressed in a quantitative or qualitative manner. *Performance measures* may address the type or level of program activities conducted (process), the direct products and services delivered by the program (outputs), and/or the results of those products or services - such as improvements to the environment or decreased threats to human health (outcomes). There is an effort throughout the federal government to move away from outputs that measure "things" in favor of outcome measures that reflect a relative direction or accomplishment. However, the Subcommittee believes that both outcome and output measures of performance are necessary to comprehensively track progress at Superfund sites and, on a national level, for the Superfund program.

The Subcommittee also discussed the secondary impacts that will result from the institutionalization of any measures of performance. In addition to the explicit and primary goal of accounting for the accomplishments of the Program, progress measures drive both behavior and expectations. Therefore, it is important to consider the positive as well as the potentially unintended behavior modification that may result from the institutionalization of a specific performance measure. For example, reporting construction completions as a percentage of the number of current NPL sites, rather than

as a total number, may create a disincentive to list new sites. Finally, it is important to consider the influence that measures will have on the expectations and resulting degree of satisfaction of interested parties, including communities, Congress, EPA managers, and the general public.

The Subcommittee emphasized the need to be clear about the purpose of any measure of progress and to carefully consider the type of measure that best addresses that purpose. In this section of the report, the Subcommittee has attempted to address a variety of types of measures and to clearly articulate their opinion of the appropriate use of those measures. However, the Subcommittee recognizes that developing suitable measures of progress is complex, and that such measures will most effectively evolve over time through an iterative process. The following recommendations are not intended to be prescriptive. Ultimately EPA will need to make decisions about the appropriate application of these measures. Once applied, the measures will influence behaviors. One can not necessarily predict how. Therefore, the Agency will need to monitor whether the indicated measures work as intended and modify them if they do not.

Terminology

Throughout this section of the report, the term *measure* is used to define factors associated with the progress of the Superfund Program. Depending on the intended use, these measures may need to be translated into specific goals, objectives, sub-objectives, or targets (for whose development guidance exists). For the purpose of this report, the Subcommittee has chosen to focus its recommendations on measures and will rely on the Agency to translate the suggested measures as appropriate for the purpose of tracking and reporting progress in terms that meaningfully reflect the accomplishments of the Program.

Types of Measures Framing the Subcommittee's Recommendations

The Subcommittee framed its recommendations for measuring Superfund Program progress around three types of measures.

National Priority Measures are "macro" measures of the Program's progress at the national level. They are overall Program-level factors for which goals, objectives and numeric targets could be set and for which consequences could flow based on whether the targets are met. Sample consequences of relevance might be how senior managers in the Program are evaluated; how funding is allocated within the Program and what appropriations are provided to the Program.

Measures of Program Progress are also measurable indicators of the Program's progress, but they generally would not be appropriate as "external targets" against which Congress or oversight agencies would pass official judgment on the Program's performance. These additional measures of performance can be used to inform decision making, and to document significant milestones at a variety of levels. They also can be "packaged" in a variety of ways to meet the needs of the intended audience. Such additional measures can be reported at the national level, at the regional level, at a state or congressional district, or at the site level.

Measures of Coordination and Collaboration have been addressed by the Subcommittee in this report to highlight a set of critical Program measures that have historically received inadequate attention. These are management-level measures that reflect important elements of a successful project, and when rolled up to include multiple sites, may be used to reflect progress of the Superfund Program at a national level. The Subcommittee has focused on measures associated with how the affected Tribal nations, communities and state and local institutions are integrated into the decision-making process, and the degree to which their participation in the decision-making process has been meaningful. Generally, these measures have been difficult to quantify. The goal of focusing on them was to underscore the need to integrate these critical elements into the measurement of the Program progress so as to encourage implementation of the Agency's guidance

Recommended National Priority Measures

- The Superfund Program is required to report its progress to Congress, the Office of Management and Budget, and a variety of external stakeholders for a variety of purposes. EPA's measures need to be simple, meaningful, and brief. To meaningfully represent the Program, national measures should address both exposure reduction and pipeline progress.

The Subcommittee recommends the following primary national measures that, in combination, reflect the significant elements of the Program's progress and accomplishments.

17. EPA should apply, as appropriate, the following National Priority Measures to its national-level reporting requirements:

- Number of sites with final remedies selected.

- Number of construction completions at the site level.

- Percentage of construction completions at the operable unit level.

- Number of sites deleted from the NPL.

The Subcommittee recognizes that the Agency is already reporting against the number of final remedies selected and the number of construction completions at the site level and supports the continued use of these measures.

In the early years of the Superfund Program, the deleting of sites from the NPL was considered a remote possibility, and therefore not a good measure of Program progress. However, the Subcommittee feels that the Superfund Program has progressed to the point that it is reasonable, appropriate, and important to add "deletion from the NPL" to the list of primary measures.

Despite extensive discussion about the potential complications of reporting at the OU level, the Subcommittee recommended reporting percentage of construction completions

at the operable unit (OU) level as a national measure. The Subcommittee recognizes that the definition and characteristics of OU's differ among sites. Some sites have a few very complex OU's and some have many and less-complex OU's. By reporting this measure as a percentage of total OU's, most Subcommittee members felt that this measure could fairly reflect a useful increment of progress being made at a sub-site level without creating an incentive to un-necessarily subdivide sites. Accounting for the Program's progress at a sub-site level was particularly relevant to the discussion of mega sites, where complex and costly sites taking years or decades to complete might have interim milestones that reflect national-level priority measures or progress.

The Subcommittee also discussed the two RCRA measures that are currently being used by the Agency to report at the national level: 1) number of sites with human exposure under control (from land and/or groundwater contamination) and 2) number of sites with contaminated groundwater migration under control. These are measures that are currently being used to track the Superfund Program's progress at the national level. However, concerns were raised from a variety of perspectives regarding why they were and were not appropriate for tracking the Superfund Program as national priority measures. They could not agree to include such measures as national priorities for the Superfund Program.

<u>Additional Considerations</u>

Recommendation 15 is intended for reporting of NPL sites only, because the Subcommittee believes it is inappropriate to integrate data from sites being cleaned up under other programs or strategies, even if Superfund dollars are spent. In particular, some members voiced concern about reporting sites being cleaned up under the Superfund Alternative Strategy (SAS) as equal to those on the NPL. Additional details regarding the Subcommittees perspectives on the SAS are included in Chapter Six.

The Subcommittee discussed the case where improved technology or remedy failure warrants the remedy to be reopened. In those cases, the number of construction completions should be adjusted to reflect a "net" total. The members did not agree to

include a separate national priority measure to capture the number of sites where remedies had been reopened.

The Subcommittee considered the reduction of threats to the environment an important goal of the Superfund Program and considered many options for possible national priority measures of progress toward that goal. Members recognized that such a measure was extremely complex, could not agree on how to measure this criterion and ultimately chose not to include it in their recommendation. The Subcommittee did agree that if an appropriate measure could be developed, an ecological measure should be included as a suite of national priority measures. The Subcommittee supports the Agency's continued efforts to develop effective indicators of progress toward protecting sensitive environments.

Some sites are much more complicated than other sites. Accounting equally for very large complex and costly sites as for small and straightforward sites may cause difficulties. One option suggested by the Subcommittee was to distinguish progress on mega sites differently from progress on other sites in order to more accurately reflect the significance of those accomplishments and acknowledge that mega sites are expected to take longer to investigate, develop remedial options and clean up.

Measures of Program Progress

The following material includes a variety of types of measures. The list was developed by the Subcommittee with the goal of providing feedback to the Agency on how to more comprehensively document and report the accomplishments of the Program. As such, they are intended to:

- Inform decision making
- Track and report progress at a variety of levels of the Program
- Increase comprehensive budget transparency
- Document the achievement of significant milestones

- Communicate the accomplishments and effectiveness of the Program to a variety of audiences
- Create incentives for positive behaviors

Some measures reflect hazard reduction, some reflect a standard for good program management, some reflect pipeline performance, and some help to characterize the site. These measures could be "packaged" in a variety of ways to meet the needs of a multitude of intended purposes and audiences. For the purpose of its deliberations, the Subcommittee focused on the "package" referred to as the national and site-level Performance Profile drafted by EPA. A mock-up of the Performance Profile is included below in Figure 4-2 [Note: the mock-up of a performance profile will be included in the body of the report. The Agency is in the process of securing an approved version.]

The Subcommittee believes that developing and systematically reporting against a core set of measures is critical to both accurately portray the progress of the Program and communicate that progress to intended audiences. The Subcommittee therefore makes the following recommendation:

18. In order to report a core set of data for all NPL sites and Superfund Program activities transparently, EPA should continue with its efforts to develop and implement a Site Performance Profile and a National Performance Profile. .

The Subcommittee believes that the Agency should focus on assuring accurate reporting on a core set of data for all NPL sites. In the future, as its capacity increases, the Program's tracking system should be expanded to include other sites receiving Superfund funding and sites of Federal Concern. However, the Agency should distinguish the reporting of NPL sites from non-NPL sites (e.g. Superfund Alternatives and cleanups being implemented under other cleanup programs).

The Subcommittee recognizes that the Agency has been developing improved performance measures in parallel with the efforts of the Subcommittee. EPA's efforts to

develop the Performance Profile reflected much of the feedback received previously from the Subcommittee members on measures under development by the Agency. The Subcommittee recognized that the performance profiles are consistent with the recommendations throughout this report, particularly those addressing transparency, communication with communities, Tribal Nations and states, and annual reporting. The Subcommittee recognizes the complexity of effectively developing, tracking and reporting measures and suggests that the Agency implement the effort immediately as an iterative process with mechanisms for making improvements as needed in the future. For example, measures could undergo pilot testing and peer review by knowledgeable individuals and organizations prior to widespread adoption. Additionally, the Subcommittee recommends that the Agency extrapolate the site specific results to reflect regional and national level progress and report the results on an annual basis so the information can reflect incremental improvements. Additional details on the Subcommittee's position on annual reporting are included in the NPL section, Recommendation 5.

This recommendation and guidance is made with the important caveat that many members of the Subcommittee felt that the Agency's efforts to measure and report progress should not divert significant resources away from actual cleanup in the field.

The Subcommittee also encourages the Agency to use the core data set for other purposes, including but not limited to: on-line, site specific reporting tools accessible to the public; a 1-page "report-card" that would score a site and allow comparisons among sites; and longer "fact sheets" for site stakeholders looking for a comprehensive overview of their site. Some members of the Subcommittee saw the ability to compare across sites as a significant value for EPA managers, community groups, Congress, and other stakeholder/watchdogs. Different data sets may be appropriate for different purposes. However, the intention of the Subcommittee is not to create an unwieldy data reporting and tracking system. A critical assumption driving the Subcommittee's support for increasing the core set of data and encouraging a variety of applications is the understanding that such a system could be highly automated. The Subcommittee

understands that the majority of the data could be efficiently downloaded from the existing tracking system and automatically reported in a variety of formats.

Measures for the Performance Profiles

Many Subcommittee members emphasized the value of limiting the data set to the most meaningful information and only to information that can be reported in an easily readable format. However, Agency staff explained that the suggested data could easily be translated into a variety of formats and that the total number of measures was not limited by potential space constraints. Therefore, the Subcommittee recommends that the Agency add additional measures (for which data currently exist) and, in the future, add additional measures for which data does not currently exist but can reasonably be obtained. The following items have not been included in the latest version of the Performance Profile developed by the Agency and should be added in order as appropriate to improve its effectiveness.

- Human exposure under control (from land and/or groundwater contamination)
- Contaminated groundwater migration under control
- Site cost information [total cost to-date and projected total (EPA data on past costs and projections of future costs if this is determined to be available for a sufficient number of sites to make reporting reliable). For example, cost spent on RA. Cost spent to get to construction complete and RA costs as a percentage of total costs)
- Community involvement indicator (Existence of a TAG - Y/N, Existence of a CAG – Y/N)
- Total number of Operable Units
- Number of sites where all cleanup goals have been achieved (since this is number is understood to be slightly different than "sites deleted from the NPL the Subcommittee felt is would be useful to track both – with an explanation of the difference)
- Performance Profile (report card) score from previous year

- Site cleanup lead (fund, PRP, mixed)
- Number, description and performance of institutional controls and long-term stewardship efforts (include percentage of ROD's requiring institutional controls)
- Sites that reached construction complete but have been reopened (with an explanation of the reason why the remedy has been reconsidered. For example, improved technology has become available or the remedy failed)
- Acre feet (or gallons) of restored water (specify amount restored for drinking water vs. cleaned up to pose no unacceptable risk to ecological receptors, or cleaned up for restricted use)
- Acres of land returned to beneficial use (specify amount cleaned up for restricted vs. unrestricted use and acres cleaned up to pose no unacceptable risk to ecological receptors)
- Acres of sediment restored for beneficial use (restricted versus unrestricted and acres safe for ecological receptors)
- Contaminants of concern at each site by medium
- Number of sites (specifically NPL sites) completing each major step in the Superfund process: remedial investigations completed, feasibility studies completed, ROD's issued, remedial designs completed, constructions completed, five year reviews completed and sites deleted from the NPL.
- Sensitive Environments Protected (This was address in the context of the national priority measures. The Agency has not yet proposed a measure for sensitive environments. The Subcommittee recognizes that it is complex and difficult, that it is important, and that when a measure is developed it should be thoroughly reviewed by stakeholders before implementation.)

Consistent site type definitions (i.e. SIC codes)

- Current land use (private/commercial)
- Exposure pathways (e.g. ground water, soils, subsistence fishing, etc.)

The Subcommittee recognizes that in some cases, EPA currently does not have the data to tack all of these measures (or they do not have consistent data to do so accurately). In other cases, there is a need to develop uniform national standards and or a clear indicator to capture the measure. The Subcommittee recommends that EPA develop the capacity to collect and track these data so that they can be reported in the future.

The Subcommittee further recognizes that some of these measures (particularly health risk related) are very complex and controversial and may need outside expertise to develop if they are to be reliable. Some members felt that the critical factor in measuring program progress is reduction of risk to human health and the environment at NPL sites. They felt that it was vitally important for the agency to monitor and calibrate risk reduction using risk assessment techniques as the basis for such a measure. Where human exposures are under control, communities and the public should know this. Other members felt that assessing risk reduction was far to complex and difficult to report in an objective way that accurately reflects the progress of the program. Furthermore, critics of risk reduction measures argued that they have the potential to trigger unintended consequences that outweigh the benefits. Additional thoughts addressing these and other measures that the Subcommittee did not reach consensus on are included in Appendix X.

Similar to the statement made with respect to national priority measures, mega sites may need to be distinguished from other sites covered by the performance profiles in order to reflect the expectation that progress on such sites will likely take longer.

Recognizing that measures of progress and performance drive decision making and expectations at the site and program level, the measures being utilized to evaluate the Program need to be consistent with the management goals and priorities that are guiding the work being conducted. Therefore, the Subcommittee worked to ensure that the recommendations in this section of the report are consistent with the site listing and management recommendations presented in other sections. Therefore, many of the

recommended additions to the Performance Profile address the recommendations being made by the Subcommittee in other sections of the report.

Additional Elements of Comprehensive Reporting

Individuals on the Subcommittee identified additional measures of progress that are potentially useful for comprehensively characterizing a site or reporting on the Program. They were not approved (or in some cases even discussed) by the Subcommittee as a whole but have been documented in Appendix X in the interest of furthering creative and innovative thinking around measuring program progress.

Measures of Coordination and Collaboration

In order to highlight a set of critical Program elements that have historically received inadequate attention, the Subcommittee focused on issues associated with how affected Tribal nations, communities and state and local governments are integrated in the decision-making process, and the degree to which their participation in decision-making has been meaningful. The Subcommittee realizes that there are many important elements of an effective national Superfund Program and successful project management. This focus has been chosen not because it is more important than other elements, but because it is seen by many Subcommittee members as equally important and historically underemphasized.

Coordination with Tribal Nations, State and local governments and Communities

Some members of the Subcommittee believe that the Superfund Program cannot be considered a success at the national level if the affected communities, Tribal nations and state and local governments do not think that EPA has adequately informed them, used their input to address sites and treated them fairly throughout the cleanup process. Effective and efficient partnerships with all parties, including Tribal nations, communities and state and local governments are critical to achieving the goals set forth in this report regarding making good decisions around listing and management of NPL

sites, leveraging existing resources and sharing the burdens of site cleanups. Effective coordination with PRP's is also critical to the success of the Program and can be improved by the Agency. However, such coordination or lack thereof can be reflected in more traditional measures. While progress of cleaning up a site, numbers of consent orders and decrees, and percentage of sites cleaned by PRP's may not always reflect the quality of communication and coordination with PRP's, they do indicate the involvement of PRP's and movement toward addressing contamination at a site. On the other hand, cleanup activities can and do progress without participation of States, Tribal Nations, local governments or communities.

Two expert panels helped to inform the Subcommittee on these matters. The comments received were very relevant to the development of this section of the report. On January 7, 2003, in Washington DC a panel of representatives of Tribal Nations appeared before the Subcommittee and on June 18, 2003 in New Bedford, MA a panel of Environmental Justice Experts appeared before the Subcommittee. Their testimony helped the Subcommittee to understand the concerns and complex challenges facing these underrepresented populations at NPL sites. The following recommendation is intended to address such concerns and challenges.

19. EPA should develop measures of performance that assess the effectiveness of Agency coordination with Tribal, state and local governments and community stakeholders.

By engaging a wide variety of perspectives in decision-making throughout the process, the Subcommittee believes that EPA will gain better understanding of the problems and issues posed by each site, and as a result have less likelihood of delay caused by last minute objections or new information from communities that would have improved decision-making. There are roles, authorities and jurisdictions unique to each of these parties and any proposed measures would supplement, document and encourage the

appropriate coordination and involvement in decision-making required by these established relationships.

Communities impacted by the decisions made under Superfund are an integral part of the decision-making process at both the site and national levels. While EPA reflects support for this principle in various guidance documents and has done important work recently in developing a collaborative model for work among communities, business and governments on specific projects, the practice of implementing guidance remains uneven across the country. Therefore, the Subcommittee's recommendations are intended to reinforce and highlight the importance of the effective policies and guidance that have been developed to date by the Agency. The Subcommittee believes it would be helpful to emphasize the importance of meaningful Tribal, state and local government and community participation by 1) measuring the success related to such participation, and 2) more aggressively incorporating the concept into the day to day management of the Program. Recommendations related to both of these approaches are included below.

Measuring the quality of engagement of stakeholders is inherently difficult. Many traditional measures of public involvement have historically focused on formal "notice and comment" requirements that represent nothing more than "checking a box." Such measures can be useful in ensuring that certain activities and contacts are made, and the Subcommittee continues this tradition to some extent with some of its recommendations aimed at implementing existing guidance. However, this "check list" approach does not illuminate the question of whether the engagement is meaningful or merely perfunctory. Yet, clearly there is a range in the impact, quality, or thoroughness of public participation and institutional coordination and involvement achieved among Superfund sites. Doubtless there also is considerable variation in the interest of various publics and institutions in the process, ranging from indifference at some places to intense concern or even opposition to Agency procedures, decisions or actions at other locations.

It is important to understand that the Subcommittee does not intend for EPA to measure the extent to which communities are wholly satisfied with remedy decisions.

Communities are not monolithic and may reflect as many different opinions regarding the ideal remedy as there are participants at the table. Some of these views may be related to issues other than the fundamental questions of or cleanup levels and technologies. For example, traffic disruption, utilization of local work force, and end uses of a site can be of local concern. Rather, the Subcommittee believes that EPA should attempt to capture whether communities believe that a) they have had an opportunity to participate meaningfully in the remedy selection process, and that their input was considered and incorporated generally as appropriate – even if every participant did not get everything desired; and b) the decisions reached will likely prevent unacceptable risks to public health and the environment.

In the cases of Tribal nations and state and local governments, the Subcommittee believes that a measure to indicate whether they "felt that EPA made a sincere effort to cooperate/coordinate with you on the site" would be appropriate supplements to the aforementioned questions in order to gain a more accurate measure of the effectiveness of their relationships with EPA.

While investing in these activities diverts resources from on the ground remedial activities, most members of the Subcommittee believe that coordination with Tribal nations, communities and state and local governments is integral to an adequate analysis of alternatives and, similar to remedial design, are necessary to ensure that remedies will be effective and implemented in an efficient and timely manner, and may reduce the need to re-design or reopen the remedy selection process at a later date. In the long run, therefore, functional relationships with all stakeholders can help to speed cleanups and reduce overall costs. However, some members of the Subcommittee feel strongly that the agency needs to increase its allocation of resources toward on the ground cleanup. A better understanding of the resources required to implement these recommendations is necessary in order for the Agency to make decisions regarding prioritization of its resources.

National Performance Measures versus Site Specific Evaluation Tools

Similar to the site-level and national-level performance profiles addressed in the previous recommendation, the Subcommittee recommends that the effectiveness of the Agency's engagement with Tribal Nations, state and local governments and communities be considered at multiple levels. A national performance measure along with site-specific evaluation of the Agency's activities serve distinct and important purposes related to evaluation of Program success while simultaneously offering valuable management tools.

The Subcommittee discussed a number of potential metrics and approaches designed to capture whether input from state and local governments, Tribes and communities were appropriately considered by EPA. It was concluded, however, that none of these objective, measurable approaches would yield unambiguous, useable data. As a result, the Subcommittee has decided that direct questioning of target audiences is most likely to provide the information sought. The Subcommittee acknowledges that the design of surveys (and similar data collection tools) and implementation of these tools is a specialized discipline that is not represented among its members. It therefore does not believe it is qualified to identify the precise method and questions to be utilized by EPA. However, the Subcommittee members believe that the core issues that should be addressed by a site-specific survey with data compiled at the national level are:

- Whether stakeholders believe they were offered sufficient opportunities to provide meaningful input;
- Whether input provided was thoughtfully considered and incorporated as appropriate, and;
- Whether stakeholders believe that human and environmental health have been or will be protected by measures taken pursuant to the Superfund Program.

By asking these questions to representatives of impacted communities, tribal nations, states and local governments at a site-specific level and aggregating the results at the

national level such metrics could be used to measure overall Program success and reflect incremental change or improvements. The Subcommittee wishes to emphasize that the most meaningful interpretation of these results will be comparative over subsequent years. As EPA's outreach improves it should expect the responses to these questions to be more favorable. Furthermore, by aggregating and interpreting results across stakeholders by sites and ultimately by nation, the whole range of views will be represented and general trends identified. The underlying data would need to be analyzed more particularly to discover specific trends and perhaps areas or constituents in need of improved communication.

Actual implementation of survey tools is likewise best left to experts. However, the Subcommittee is aware of existing efforts to implement such surveys and offers the following suggestions to improve the effectiveness of the efforts to date:

- The collection of such data should be made as easy and convenient as possible so as not to create an unwieldy administrative burden on the Program.
- To the extent possible, EPA should collect this kind of feedback through existing forms, interviews, public meetings and other communication mechanisms and tools as opposed to developing duplicative new tools for collecting data. Specific examples of such tools are identified in the next section.
- TAG recipients should be asked to provide answers to these core questions (online options should be available) along with their other reporting duties
- Community Advisory Groups (CAG's) should be asked to provide input (recognizing that in most cases they are not receiving funds from EPA and may have very limited resources)
- Input should be sought, not only from the most active participants but from a representative sampling of entire affected communities, including the local governmental officials.
- Care should be taken to distinguish feedback from residents most directly affected by the contamination and decisions at the site

- Data should be collected so as to enable separate analysis and reporting of results for mega sites, federal facilities, fund-lead versus PRP lead sites, TAG recipients, CAG members, immediate neighbors to facilities, and other categories as may be identified as distinguishable, as well as totals for the entire Program.

Site-Level Measurements and Management Tools

The Subcommittee also recommends that the Agency provide incentives to implement existing guidance and policies by measuring the success of these efforts on a site-specific basis. For example, the Agency should maximize the use of the required community interviews and Community Involvement Plans by:

- Targeting key stakeholder audiences, including those identified in Attachment G, and Natural Resource Trustees, during the community interviews and community involvement plan design and implementation,
- Make community involvement and institutional coordination more integral to site management.
- Integrating community involvement and institutional coordination factors into reporting requirements.

Additionally, the Agency should increase emphasis on the implementation of site-level efforts underway, including but not limited to site-specific community effectiveness surveys, ("What Do You Think About EPA's Community Involvement Efforts at X Site?" in Attachment G.); questionnaire templates that have been developed already for CAG's, listening sessions, and public meetings and community interviews. These tools can collect valuable information about the effectiveness of the Program and have the potential to better inform decision making at the site and regional level. Therefore, the Subcommittee believes that, to achieve this recommendation, the following guidance should be implemented:

- Target the categories of stakeholders identified in Attachment G in the distribution of the various evaluation tools.
- Take advantage of existing mechanisms for circulation, communication and collection of results from various tools to minimize additional expenditures. Hand delivery of survey forms should be considered.
- Aggressively apply the tools to mega sites in particular. Outreach may be more complex and expensive to administer at some of these sites due to the distribution of affected individuals over large geographical areas. However, the costs of bad decision-making, or delayed decision-making are likely to be higher at such sites as well.
- Prioritize environmental justice communities as a primary target for outreach efforts.
- Perform surveys at more sites than (14) currently done, and do not limit surveys to sites at which Community Coordinators or Remedial Project Managers request them.
- Dedicate additional resources to survey administration, interpretation and distribution of results.
- The timing of such surveys should be carefully considered. It may be that feedback, especially from large, expensive sites, would be useful at least at the RI, FS and ROD stages. Surveys related to inactive sites also could provide valuable input.
- Respondents should have the opportunity to submit information anonymously.

EPA may also want to consider collecting information from PRP's and perhaps other sources to help in interpreting the data obtained and more accurately and comprehensively capture the nature of tribal, state and local government and community engagement at the site. In particular, their perspectives of all of these entities regarding the responsiveness of the Superfund program could be useful if supported with concrete examples of modifications made to decisions based on input received from communities and institutions.

The Subcommittee also recommends that the Agency continue to invest in the development and implementation of tools for conducting, tracking and evaluating community and tribal involvement with a view toward increasing awareness throughout the Agency of the value and benefits of the perspective. For example, the Agency may want to consider sensitivity training and environmental justice training for its regional project managers.

Finally, the Subcommittee recommends that the Agency further explore the option of engaging independent reviewers or outside consultants to evaluate the effectiveness of Tribal, state, local government and community coordination efforts.

DRAFT

VI. Additional Priority Issues

As indicated earlier, this Subcommittee was established to help EPA shape the future of the Superfund Program by providing advice on —the role of the NPL, how to manage mega sites, and how to measure the Program's progress and performance. These issues are complex, have many facets, and affect different parts of society in different ways.

The information in this report resulted from wide-ranging discussions in work groups, telephone conferences, and public meetings. During these deliberations, the Subcommittee identified additional issues that are important to the success of the Superfund Program and that should receive serious consideration by EPA and others interested in the Program. Some of these issues were perceived to be outside the scope of EPA's original charge to the Subcommittee, and others were beyond the Subcommittee's ability to fully deliberate or reach consensus on within the time available.

Despite these limitations, the Subcommittee believes the following issues should be brought to the attention of those interested in the Superfund Program and should be part of the continuing dialogue about the Program:

- Increasing annual Superfund appropriations.
- Emphasizing prevention
- Ensuring adequate cleanup funds for operating facilities.
- Examining the roles of the Agency for Toxic Substances and Disease Registry, and the National Institute of Environmental Health Sciences.
- Increasing the effectiveness of institutional controls and long-term stewardship.
- The need for input on the Superfund Alternatives Strategy.
- Continuing the discussion of important national issues.
    - Issues unique to cleanup at federal facilities
    - Effective community involvement
    - The roles of the ATSDR and NIEHS

Increasing Annual Superfund Appropriations

One of the most difficult challenges the Subcommittee faced in its deliberations was how to address the testimony from EPA and representatives of state environmental agencies that suggested that, with the current level of funding, the Superfund Program is experiencing a shortfall. A part of that shortfall is attributable to the need to fund remedial construction at a handful of large, expensive sites. The Subcommittee attacked this challenge from several perspectives. In the NPL chapter of this report, several recommendations propose improvements to the listing process that, if implemented, should bring a better focus to EPA's identification of NPL sites, encourage PRP-initiated (and -funded) actions, and allow EPA to utilize cleanups under other environmental cleanup programs where appropriate. Recommendation 12 calls for an independent, – third-party review of Superfund spending to find efficiencies and other opportunities that may increase funding for the remedial program, particularly to direct more money to on-the-ground cleanup activities or physical construction at orphan sites. This review should include the evaluation of the impact of directing EPA to spend its money at specifically designated sites.

If all of these approaches are used, the Subcommittee believes that the recommended efficiencies will result in an increase in funds available for fund-lead, remedial actions. Nevertheless, the Subcommittee is concerned that while these reforms are proceeding, there will be a period during which the current level of funding for the Program will cause further delays in fund-lead remedial actions and orphan shares. This, in turn, will continue to burden affected communities, and further decrease the Agency's ability to implement its fairness administrative reforms[1]. The Subcommittee believes that these adverse impacts impair the long-term functioning of a sound Superfund Program, undermine the Program's credibility, and threaten its ability to meet its strategic goals.

[1]Fairness administrative reforms were developed to create incentives for responsible parties to take the lead in initiating cleanup by affording past cost forgiveness and other considerations where they otherwise would pay far more than their fair share.

As a result, the Subcommittee feels that, in addition to improvements that increase the efficiency of current Superfund funds, a short-term targeted increase in annual appropriations should be considered. This increase would address the current backlog, provide additional help for the cleanup of orphan shares, and support the long-term viability of the Program. Thus the Subcommittee recommends an increase in funding of at least $150 million[2] per year for the next five years (or for a time period determined by EPA to be necessary to address the backlog). (Note that the Subcommittee did not take a position on whether funding will be needed after five years.) At the same time, the Subcommittee reiterates the need for the Agency to implement Recommendations 11–13, focusing on increasing the Program's efficiency. This increase in appropriations should be directed solely at fund-lead remedial actions and orphan shares[3] for remedial actions, and must result in a net increase in the total amount of funds going toward fund-lead actions. In other words, in FY 2003, EPA expenditures for fund-lead remedial actions were approximately $230 million. The Subcommittee is recommending that in FY 2005, actual expenditures should total $380 million. This increases the funding of on-the-ground cleanup, but does not take away funds from other phases of the Superfund pipeline, enforcement activities or other critical components of the Program's success.

A: The Subcommittee recommends an increase in the annual appropriation to the Superfund Account of $150 million each year for FY 2005 through F Y2009 to be used only for fund-lead remedial actions and orphan shares of remedial actions at final NPL sites. These additional funds must constitute a net increase in funding for these activities over FY 2003 expenditures for the same activities.

This is a limited time recommendation that is conditioned on the assumption that EPA will diligently conduct the reforms recommended by the Subcommittee in other chapters of this report in order to minimize the number of years for which this supplemental appropriation is required. The funds from this appropriation are intended to result in a

[2] This dollar amount dollar amount should be determined by Congress based on details of the projected shortfall documented by EPA, similar to that which was provided to the Administration for their request for $150 million in special funding for FY2004.

[3] This specific appropriation is for orphan shares – for use at OU's without a viable PRP and the funds are not intended to be used as revolving funds to pay for cleanup and then seek reimbursement from other parities.

significant increase in the percentage of the Agency's budget spent on moving on-the-ground remedial actions forward. Furthermore, the Subcommittee assumes that EPA's enforcement authorities are neither abated nor supplemented by these funds[4]. The funds should not be made available until EPA has initiated its effort to implement Recommendation 12 for a third-party audit. Moreover, the Subcommittee recommends that the Administration ensure that this increase does not come at the expense of other needed services provided under the VA/HUD/Independent Agencies appropriation. The Subcommittee recommends that Congress NOT earmark the money for particular sites, which could tie the Agency's hands in setting priorities and lead to a much more politicized process. Rather, the Subcommittee believes that EPA should be allowed to use the priority-setting process described in the NPL chapter, particularly in Recommendation 10, to identify which remedial actions to fund in any given year. Finally, the funds should not be used on Superfund Alternative Sites (SAS). Additional comments regarding the SAS are provided later in this chapter and in the Measuring Program Progress chapter of this report.

Emphasizing Prevention

The topic of pollution prevention was not specifically part of the Subcommittee's original Charge. However, after discussing the issue the Subcommittee decided to address this topic both with respect to ensuring adequate pre-listing cleanup funding and because of the desire to prevent the need for major cleanup at facilities.

The federal government, states, Tribal nations and other jurisdictions have statutory and regulatory programs designed to promote safe management of hazardous materials. In addition, many private companies and facilities have integrated significant pollution prevention steps into their everyday operations with marked success. In other cases, however, either because of a lack of adequate enforcement or a lack of sufficient environmental controls contamination continues to occur at some facilities. If not

addressed, this contamination could turn into a major cleanup need at some operations. In addition, where insufficient financial assurances have been provided, some cleanups could get shifted to the National Priorities List, further burdening an already overstretched program. While pollution prevention will not prevent all sites from being added to the NPL, such measures could reduce the numbers of sites that might otherwise be listed.

To address these concerns, the Subcommittee recommends EPA take steps to both prevent the creation of sites that may need clean up in the future and to prevent sites that may need clean up from having to draw upon the financial resources of the Superfund program.

The Subcommittee believes it would be prudent for EPA to identify prevention techniques across all waste programs to see if their application to Superfund would prove useful. Further, the Subcommittee believes that EPA should review sites added to the NPL in recent years to determine whether trends exist with respect to contaminants, types of sites and other characteristics so as to assess whether a stronger focus on prevention could have potentially kept those sites from becoming Superfund sites. The intent of this analysis is to support the development of guidance to the regions and states for a renewed focus on pollution prevention. In addition, the results would support efforts by the Agency in the development of financial assurance mechanisms that, over time, might result in fewer fund-lead sites (see Section VI, Recommendation B). This effort should not be so intensive that it drains resources from the goal of clean up.

The EPA should undertake pollution prevention reviews in an open and transparent fashion. Communities located near facilities have a long-term interest in working with EPA and industry to promote pollution prevention programs that provide opportunities for sound economic development, while reducing threats to public health and the environment. Similarly, companies that engage in pollution prevention activities have an interest in ensuring that such measures are undertaken by all companies, in order to ensure a level playing field.

Ensuring Adequate Cleanup Funds for Operating Facilities

B: To reduce Program expenses, to encourage timely settlements with viable and cooperative PRPs, and to prevent the creation of new NPL-caliber sites and orphan shares, EPA should undertake efforts to enhance and implement financial assurances that can be used for Superfund sites.

In particular, consideration should be given to the following three points:

1. EPA should exercise its authority[5] to ensure that financial assurance obligations are reliably and uniformly enforced under RCRA and other statutes, and determine activities for which financial assurance is required to minimize creation of NPL sites necessitating Superfund expenditures. When identifying appropriate financial assurance requirements under these authorities, EPA should require the use of the most effective mechanisms to cover potential liabilities.

2. In addition, EPA should consider the use of appropriate financial assurance instruments to encourage settlements with PRPs without compromising liability allocation or enforcement authorities. Doing so would minimize the potential for creating new orphan shares.

3. To ensure sound implementation of financial assurance requirements, EPA should develop and provide the following to regional and state officials responsible for evaluating and approving financial assurance vehicles: comprehensive tools, guidance, and training on how to effectively implement financial assurance requirements under 42 U.S.C. §108(b).

Neither this recommendation nor any other position presented in this report is intended to endorse the use of corporate guarantees as a form of financial assurance.

[5] pursuant to 42 USC 108 (b)

Examining the Roles of ATSDR and NIEHS

During the Subcommittee's deliberations, the relationships of both the Agency for Toxic Substances and Disease Registry (ATSDR) and the National Institute of Environmental Health Sciences (NIEHS) with the Superfund Program were initially raised in the context of analyzing the Superfund budget. In the opinion of some of the Subcommittee members, the ties between these agencies and the Superfund Program in terms of funding and the potential to influence site listing and management decisions justified additional inquiry into the potential to increase program efficiencies and effectiveness.

ATSDR Background

ATSDR was created in 1980 by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). As reported to the Subcommittee,[6] ATSDR is the principal federal public health agency charged with evaluating the human health effects of exposure to hazardous substances. ATSDR's mission is to prevent exposure and adverse human health effects and diminished quality of life associated with exposure to hazardous substances from waste sites, unplanned releases, and other sources of pollution present in the environment. ATSDR carries out its mission through programs in public health assessments, consultations and studies, exposure and disease registries, toxicological profiles, applied research, health education and communication, emergency response, and emergency events surveillance.

ATSDR evaluates the potential health impacts at hazardous substance sites or spills through its public "health assessments" or "health consultations." ATSDR health assessments on sites include the following:

- an evaluation of the information available about site-specific contaminants,

[6] 11/4/03 written correspondence via email "*NACEPTresponse-OPEA-2003-11-3-rev*

- a determination of whether people might be exposed to environment hazards from the site,
- a determination of what harm exposure to site contaminants might cause, and
- recommendations for actions to protect people's health.

ATSDR and EPA respond to site-specific environmental concerns from private citizens, and state and federal agencies for the purpose of determining if there is a completed exposure pathway, if there have been prior exposures, and the possible health effects of such exposures. Depending on the existence of or potential for exposures, ATSDR recommends or performs appropriate prevention and follow-up health activities.

NIEHS Background

In 1966, the U.S. Surgeon General established the Division of Environmental Health Sciences as a part of the National Institutes of Health. In 1986, under the Superfund Amendments and Reauthorization Act, Congress established two programs, the Superfund Basic Research and Training Program (SBRP) and the Worker Education and Training Program (WETP), to be managed NIEHS, within the National Institutes of Health (42 U.S.C. §9660). NIEHS provides funds to universities and nonprofit institutions to accomplish the goals of both these programs. Currently, there are 19 SBRP grantees and 18 WETP grantees.

As reported to the Subcommittee,[7] the SBRP is a university-based program to support basic research and training grants in the area of risk assessment. This research is designed to address the wide array of scientific uncertainties facing the national Superfund Program. The goal of supporting research in this area is to provide a better understanding of contaminant toxicity issues so that emerging data can be integrated into risk assessment and remediation decision making. The primary objective of the WETP is to fund nonprofit organizations to provide high-quality training to workers who are

[7] 09/5/03 written correspondence via email "*NACEPT1.doc*"

involved in handling hazardous substances or in responding to emergency releases of hazardous materials.

ATSDR and the two programs under NIEHS received their funding as pass-through monies from EPA until 2001, when Congress chose to appropriate the funds for these two programs directly to the respective agencies. Even though the appropriations are no longer tied to EPA's funding, CERCLA reflects Congress' intent that the information generated and services performed by ATSDR and NIEHS would contribute to the goal of appropriately identifying and cleaning up national priority sites. Furthermore, the money previously appropriated to EPA for these agencies was subtracted from the EPA budget for conducting Superfund activities. Given the budget shortfalls currently facing the Superfund budget, and the emphasis placed on identifying current human health threats posed by the releases of hazardous substances, it is imperative to maximize the utility and effectiveness of the activities of these programs, in particular ATSDR, which was specifically created to focus on human health issues at proposed and listed Superfund sites. It is the experience of many of the members of the Subcommittee that the mission of these agencies, with respect to their support for the Superfund Program, has not been fully realized.

In August 2003, the Subcommittee sent to NIEHS and ATSDR a short list of fundamental questions regarding the functioning of their programs. The purpose of this exercise was to establish a common understanding of the responsibilities of the agencies and the interrelationship between their efforts and those of the Superfund Program. The intention was to build upon that common understanding to identify strengths and shortcomings in the existing program, and identify suggestions for EPA to improve the relationship and maximize efficiencies with regard to interrelated activities. In response to these requests, the Subcommittee received the written correspondences referenced above. In addition, Dr. Henry Falk, Assistant Administrator for ATSDR and Ms. Beth Anderson, Program Analyst of NIEHS, participated in the November 4, 2003, meeting of the Subcommittee.

Given time constraints, the breadth of its charge from EPA, and the difficulty obtaining the necessary information, the Subcommittee was not able to delve into these issues to the degree that many members desired. With the limited information provided, along with the direct experience of some Subcommittee members, the Subcommittee has identified a number of preliminary recommendations for EPA related to the work of ATSDR and NIEHS.

C: EPA should improve its cooperative relationship with ATSDR.. EPA in coordination with ATSDR should make a concerted effort to work with affected communities, states, and Tribal nations to regularly identify, on a site-specific and nationwide basis, projects and research efforts that would be most helpful in determining adverse health effects posed by releases of hazardous substances, thereby informing decisions related to NPL listings, investigations, and remedy selection and implementation. EPA should include recommendations both in proactive suggestions for projects, and in reactive comments on ATSDR proposed projects. ATSDR's responsiveness to these recommendations should be included in EPA's (annual) reporting.

A general perception among many stakeholders and, in particular, communities, is that ATSDR is not adequately responsive, and its work products are not useful in understanding adverse health effects and risks posed by hazardous substance releases at Superfund sites. Dr. Falk informed the Subcommittee , that his agency has a formal liaison with EPA, and tries to perform work projects where requested by EPA. While coordination seems to take place at high levels between the agencies, it is the perception of many Subcommittee members that such coordination does not appear to consistently or effectively influence decision making at the site level.

To better match the output of ATSDR with reasonable expectations and the needs of the program and its stakeholders, the Subcommittee would like EPA to be more proactive in targeting the research efforts of ATSDR. For example, conducting in-depth body burden studies of community members known to have the greatest exposure to a release could

provide greater benefit to the community and EPA decision makers than a cursory summary of existing environmental and risk data for a site. Such targeted biomarker studies could provide site-specific information more quickly, in time to influence the early decisions that must be made for characterizing and managing sites. This has the potential to save time and money, and to reduce impacts on human health. Under ATSDR's interpretation of CERCLA, either of these activities would satisfy its mandate to perform a health assessment at each NPL site.

D: EPA should establish a transparent and cooperative relationship with NIEHS to provide recommendations and rationale for research, and to become educated on the efforts and findings of NIEHS. In so doing, EPA Site Managers and Community Involvement Coordinators should be educated as to the resources available from NIEHS (and ATSDR) and should always inform the community of these resources.

The Subcommittee respects the role of NIEHS in performing basic research. However, from the perspective of many stakeholders in the Superfund process, this role appears to be divorced from the issues and needs of the Superfund program and its affected stakeholders. EPA's views regarding useful research initiatives should be provided to NIEHS in a meaningful way, and results of such research should be referenced in EPA's [bi] annual report. If such involvement is already taking place, the process should be made more transparent to affected stakeholders who may have an interest in providing input and/or tracking the results. Such an effort is likely to result in broader application of the research and decreased duplication of research and reporting efforts.

EPA is the agency with the most direct and continuous interaction with states, Tribes, and communities. Therefore, EPA is in the best position to ensure that these stakeholders are informed regarding the potential available resources and health information relevant to site cleanups. Health issues are frequently the issues of greatest concern to affected communities. While NIEHS is primarily involved in basic research and training, the studies it have funded speak to concerns at specific Superfund sites. A process to convey

the NIEHS findings to the field is lacking and should be implemented, especially in those communities with contaminants studied under NIEHS funding.

E: EPA should create Guidance for Declaring Public Health Emergencies

Generally speaking, the primary concerns expressed by affected communities are related to obtaining credible information on possible health effects resulting from exposures to hazardous substance releases, and medical alternatives to address health effects. Such medical care and testing are referenced in CERCLA, 42 U.S.C. §104(I)(1)(D) and (E), which provide as follows: "in the case of public health emergencies caused or believed to be caused by exposure to toxic substances, provide medical care and testing to exposed individuals…." However, the services that can be provided, and the circumstances in which such services can be provided, are unclear. Therefore, the Subcommittee recommends that EPA, in cooperation with ATSDR, create guidance that describes: (1) the agency or agencies responsible for declaring "public health emergencies" under CERCLA, including 42 U.S.C. §104(i)(1)(D) and (E); and (2) the criteria that an agency or agencies will use to declare such a public health emergency. This guidance should also describe how and when the federal government intends to implement its statutory duty under §104(i)(1)(D) of CERCLA to, "in the case of public health emergencies caused or believed to be caused by exposure to toxic substances, provide medical care and testing to exposed individuals…," and provide for "admission to hospitals and other facilities and services operated or provided by the Public Health Service," as such facilities are no longer available. EPA and ATSDR should develop this guidance in an open and transparent process that involves the representatives from the Department of Health and Human Services, and the public and other stakeholders, including written public comments.

Increasing the Effectiveness of Institutional Controls and Long-Term Stewardship

The implementation, tracking, maintenance, and enforcement of institutional controls, engineering controls (containment), and other controls, such as signs and fences, are critical at most sites in ensuring long-term protectiveness. Many issues still need to be addressed regarding the use and enforcement of institutional controls, including ensuring that needed controls are in fact implemented, and providing funding for the costs of implementing, monitoring, and enforcing institutional controls. Some Subcommittee members believe that these issues are extremely important and should be a high priority for the Superfund Program, given the Program's emphasis on permanent treatment.

Time constraints limited the degree to which the Subcommittee was able to research and discuss this issue. However, the Subcommittee was informed of significant advances EPA has made in recent years to address issues associated with institutional controls. For example, EPA has been promulgating thoughtful and thorough guidance, supporting the efforts of the National Conference of Commissioners on Uniform State Laws, and funding the creation of model Land Use Control Implementation Plans for use by state and local governments. In addition, EPA has expended substantial effort to develop a national institutional controls tracking system, in cooperation with federal, state, Tribal, local, and industry entities. This system is intended to both enhance the effectiveness of institutional controls and to provide information on all cleanup sites with institutional controls in a community.

Continued effort is needed to address the information gaps and respond to ineffective remedies. In particular, improvements suggested by Subcommittee members included the following:

- Better document failures of institutional and engineering controls.
- Better document any actions that have been taken to enforce institutional controls.
- Address the overlapping and often disconnected responsibilities at different levels of government for implementation of tracking, monitoring, and/or enforcement.
- Improve the standardization of terms
- Increase federal, state, Tribal, and local agencies and industry participation in the coordinated tracking effort.

- Assess the ability of five-year reviews to evaluate such controls.
- Increase the Agency's emphasis for operating under a preference for permanent remedies.

The Subcommittee supports the continued investment in the Agency's efforts, and encourages EPA to improve training and accountability among project managers, many of whom do not follow EPA's existing guidance. Further, the Subcommittee concurs in EPA's view that the development of performance measures for long-term stewardship activities is critical, regrets that it did not have sufficient time to undertake the elements of the charge dealing with long-term stewardship issues, and encourages EPA to pursue the issue through ongoing national dialogue.

F: EPA should develop a system to track, evaluate and increase the effectiveness and the performance of institutional controls and long-term stewardship

The Need for Input on the Superfund Alternatives Strategy

Significant concerns were raised by the Subcommittee members based on the limited information provided by the Agency on the Superfund Alternative Strategy (SAS). The SAS makes a number of EPA administrative reforms and guidance only discretionary. It is based upon EPA's individual arrangements with private parties outside of the NPL listing process, and although such guidance for the SAS requires consistency with the National Contingency Plan and a mandatory Technical Assistance Grant, it is not clear what oversight will be conducted, whether remedies selected will be comparable to those selected for sites on the NPL, and whether these sites will be cleaned up faster or slower than NPL sites. Additionally, this strategy does not appear to support the prioritization criteria (Recommendation 10) and coordination with other programs (Recommendation 8) recommended by the Subcommittee in this report, nor does it seem to be consistent with the general trend toward increased transparency that the Subcommittee is advocating throughout the report. Since the information upon which to base a thorough evaluation was not available, the Subcommittee feels that the SAS should remain small and in a pilot

phase until significantly more input is received from a broad range of perspectives on the value and limitations of this strategy.

Continuing the Discussion of Important National Issues

During the course of its deliberations, the Subcommittee identified additional issues that they felt were critical to the success of the Superfund Program but were beyond their ability to fully examine during the time available. Some of these issues have not been resolved and the Subcommittee feels they warrant additional consideration by EPA and others interested in and impacted by the Program. The following set of recommendations address the need to continue the national-level dialogue on 1) the role of ATSDR and NIEHS in the Superfund Program, 2) effective community involvement and 3) Issues unique to federal facilities. The goal of such ongoing dialogue is to provide better informed and more comprehensive input to the agency on some of the challenges that have been identified by but not adequately addressed by the Subcommittee. Many members felt strongly that these national discussions should not take the form of a Federal Advisory Committee; others felt that a FACA was an important option that should be considered among the many available for convening a constructive national dialogue on these important issues related to Superfund.

G: EPA should convene a national dialogue on the role of ATSDR and NIEHS in the Superfund Program.

Specific decisions on the most useful activities to be performed at a site will need to be made at a local level. However, ATSDR and NIEHS have several responsibilities that relate to national issues, such as the compilation of Toxicological Profiles and the Disease Registry. For such national issues, and to better understand and define priorities, best practices, and lessons learned in performing site-specific studies, the Subcommittee believes that EPA should obtain input from stakeholders—in particular, states, Tribal nations, and communities. This dialogue could take the form of a series of workshops and/or meetings culminating in collaborative thinking or position statements (as deemed

appropriate by EPA). The findings and conclusions from this effort could be incorporated into the proactive agenda-setting suggested in Recommendation C above.

H: EPA should convene a national dialogue to develop recommendations on effective community involvement.

As discussed in the Measuring Program Progress chapter of this report, one measure of a successful cleanup program is the effectiveness of the community involvement program. Though much has been written about community involvement via agency guidance and other national policy dialogues, consensus and general understanding of what constitutes effective community involvement do not exist. To achieve such understanding and perhaps consensus, the Subcommittee recommends that EPA conduct a national dialogue, possibly one which falls under the umbrella of NACEPT (though Subcommittee members disagree on whether a federal advisory committee is the best forum.) Regardless of the most appropriate format, this effort is intended to serve the following purposes:

1. By establishing consensus recommendations, the dialogue would clarify the appropriate role of the community in the cleanup decision-making process for the benefit of both EPA and the community.
2. Further, it would help to establish reasonable expectations regarding the capabilities of the Superfund Program in general and the role of the public in particular.
3. Any effective dialogue would provide EPA with solid recommendations to implement throughout all of its programs and would be useful in establishing measures of meaningful community involvement.

I: EPA should sponsor a national dialogue to examine issues the Agency and other stakeholders face unique to federal facility cleanup activities.

While federal facilities were excluded from the charge, some members of the Subcommittee felt strongly that this report would not be complete without a discussion of this critical component of the Superfund Program. Federal facilities that are designated on the NPL fall under the regulatory structure of the Superfund law, but they do not depend on money from the fund itself or from EPA appropriations. Cleanups at federal sites are funded by the responsible federal agency.

As a group, federal facilities are the most expensive remediation projects in the Superfund Program. There are 171 federal facilities on the NPL and 6 sites proposed to the NPL for a total of 177 Federal sites. The annual budget for EPA, the Department of Defense and the Department of Energy federal facilities exceeds $9 billion. In addition to the NPL sites, great numbers of formerly owned federal sites and federal non-NPL sites compound the magnitude of the problem.

The cleanup of contaminated federal lands, now well underway, is technically challenging, legally complex, and as indicated above, enormously expensive. Many federal facilities resemble private industrial contamination sites, with decades of industrial dumping and leaks contaminating soil and groundwater. As a whole, however, federal facilities differ from sites owned by private parties or local governments in at least five ways:

1. Contaminated federal properties tend to be larger, combining several types of contamination and contaminated media on a single property.
2. Certain federal pollutants, such as waste from nuclear weapons production and unexploded bombs and shells, are unusual or unique, with no commonly accepted, cost-effective cleanup technology. In some cases, the technology to clean up these sites simply does not exist.

3. Federal agencies are more resistant to oversight by the agencies established to regulate environmental contamination—EPA and its state counterparts. Only in 1992 did Congress pass the Federal Facilities Compliance Act, clarifying that states had the power to enforce hazardous waste management laws at federal facilities. The Department of Defense has mounted a concerted campaign to roll back the provisions of this and the Superfund law.
4. Agencies with national security missions, such as the Department of Defense and the Department of Energy's nuclear weapons complex, were (and in some cases still are) reluctant to disclose information about their contamination. This lack of disclosure complicates investigative studies and subsequent remedial designs by ensuring that the full extent of contamination is not adequately characterized.
5. Due to the nature of contamination at Defense and Energy sites, cleanup is projected to take hundreds of years to achieve, if ever.
6. Federal agencies have been delegated certain cleanup authorities under Executive Orders that may limit the authorities of regulatory agencies.

Federal facilities are the nation's largest landowner. Thus, the contamination at these facilities touches many lives in all types of communities, from Tribal lands, to rural towns, to national parks, to heavily populated areas. The unique challenges posed by these sites, and the evolution of the Superfund Program since the release of the Federal Environmental Restoration Dialogue Committee Report, are such that they warrant significant consideration by a group of diverse interests specially constituted to focus solely on federal facility cleanup issues.

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Glossary of Terms and Phrases

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Appendices

[Review Note: Additional appendices will be added. Appendix materials will be reviewed by Subcommittee members prior to finalization of the report]

A. List of Subcommittee Members and Member Bios

B. Revised Charge to the Subcommittee

Original Charge to the Subcommittee

C. Description of Subcommittee process, including list of individuals who made presentations or comments to the Subcommittee

D. Supporting Documents for the Background Chapter

E. Supporting Documents for NPL Chapter

Law's memo

FFERDC document

F. Supporting Documents for Mega Sites Chapter

G. Supporting Documents for Measuring Program Progress Chapter

Performance Profile
Community Satisfaction Survey

H. Supporting Documents for the Additional Priority Issues Chapter

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