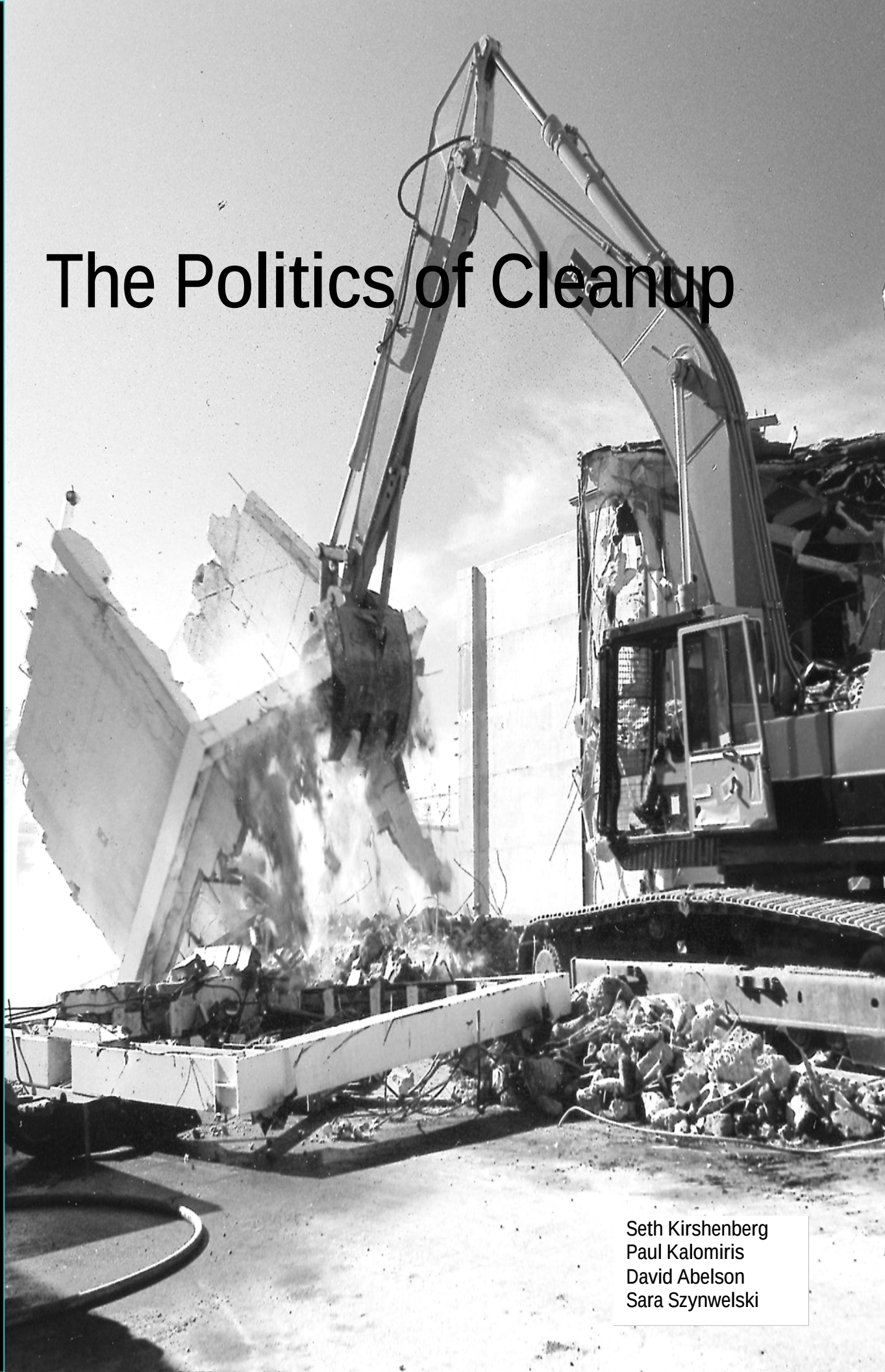
Energy Communities Alliance

The Politics of Cleanup



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The Politics of Cleanup

Lessons Learned from Complex Federal Environmental Cleanups

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The Politics of Cleanup

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Foreword

The environmental cleanup process at a federal facility seems straightforward: investigate the nature and extent of contamination, identify the future use of the site, develop the scope of work, and then clean up the site. However, many steps and decisions can complicate this process and extend the time it takes to complete cleanup.

All of the parties involved want the site "cleaned up," but how they define "cleanup" varies greatly. For instance, identifying the future use of the site and a cleanup level that is protective and supportive of such use are issues that have challenged federal and state regulators, Congress, local governments and other community members at sites throughout the United States. Yet, despite these and other challenges, federal agencies in recent years have been able to clean up a number of contaminated facilities. In certain cases, cleanup has been accomplished under budget and ahead of schedule. The U.S. Department of Energy (DOE), whose sites are a focus of the case studies in this report, successfully developed technical and political strategies to cut years and dollars from its initial projected timelines and cost projections.

The Politics of Cleanup *recognizes that cleanup is not simply a technical activity, but also a political process.*

There are many reasons why DOE cleaned up several of its sites for less money and in a faster time frame: Congress committed steady funding to the projects; DOE replaced nuclear weapons production contractors with environmental cleanup contractors and developed appropriately scoped performance contracts; communities accepted the closure of the production facility and loss of jobs; contractors and DOE identified and developed new cleanup technologies; DOE changed its community involvement and cleanup policies; Congress amended cleanup oversight laws; site workers committed themselves to viewing cleanup as a project, not a career; and sites were cleaned up to future use versus natural background levels. This report focuses primarily on one central element of DOE's successes: members from the affected community partnered with DOE, Congress, and federal and state regulators to achieve a timely and protective cleanup.

This report responds to a congressional request. In the Senate report accompanying the fiscal year 2005 National Defense Authorization Act, lawmakers identified the need for sharing lessons learned regarding accelerated environmental cleanups at DOE nuclear weapons sites in an effort to reduce the health and safety risks the agency faces at other nuclear weapons facilities it will soon begin remediating. To broadly analyze and present the varied opportunities and challenges in environmental cleanups, ECA and DOE diverged slightly from the congressional mandate to evaluate three closure sites by examining two federal facilities slated for closure —

the Rocky Flats Environmental Technology Site in Colorado and the Mound Site in Ohio — and one with an ongoing federal mission, the Oak Ridge Reservation in Tennessee. These sites present different models for how the parties (Congress, federal and state agencies, state and local governments, and others, including community groups and economic development organizations) can partner to identify and resolve difficult technical and policy issues and thus clean up federal facilities in a timely manner.

The title of this report, *The Politics of Cleanup,* recognizes that cleanup is not simply a technical activity, but also a political process. Within a legally compliant cleanup process there is a range of permissible future uses (e.g., open space, industrial, business park) and cleanup actions the parties can take to support the agreed-upon future uses (e.g., removing contaminated soils versus restricting access to the contaminated area; treating groundwater versus prohibiting use of such water; cleaning up an area to a level that would permit industrial reuse versus cleaning up the same area to a level that could support residential reuse). The process for identifying and resolving such issues and the decisions themselves constitute the "politics of cleanup." By identifying those interests and developing appropriate solutions, the cleanup process shifts from a strictly technical project to a broad-reaching partnership from which grows the expectations that will help judge whether a cleanup has been a success. Understanding the critical alliance among the parties is what ECA believes Congress was seeking to better understand when it requested a review of the lessons learned when partnering with communities surrounding DOE facilities.

Community members and state regulators have described the cleanup process as a study in organizational dynamics that takes a long time to complete. This report studies the dynamics at play and distills the salient lessons learned from completed and ongoing environmental cleanups so that parties at other sites facing complicated environmental cleanups can facilitate comprehensive and timely cleanup processes.

Report authors at the Rocky Flats site standing in front of the former location of building 771, once considered the most dangerous facility in the United States.

Executive Summary

Interaction between federal, state and local parties plays a significant role in the success of environmental cleanup projects at federal facilities. Foremost, members of the communities affected by a federal cleanup action must effectively work with federal and state regulators and cleanup contractors if they hope to meet the public goal of cleaning up sites in a way that will permit the sites to remain or once again become assets.

Federal site cleanups are political processes as well as technical activities. The process for identifying and resolving the issues attendant in this undertaking — and the decisions themselves — constitutes the politics of cleanup. By identifying the interests of the parties involved and in developing appropriate solutions to conflicts as they arise, the cleanup process moves beyond being a solely technical project to encompass a broad-reaching dialogue about what it means for a cleanup to be deemed successful and complete.

From our research and interviews with federal, state and local government officials, community representatives and cleanup contractors, ECA developed recommendations for parties that are going through complex environmental cleanups as a way to help them save time and minimize frustration throughout the process.

Our recommendations are grouped into four categories that broadly capture key steps in the cleanup process:

I. *Goals*: Developing Goals and Identifying the Future Use of the Site;

II. *Actions*: Accomplishing Cleanup by Focusing on and Refining Goals Throughout the Cleanup Process;

III. *Communications*: Engaging the Community Through Consultation, Coordination and Ongoing Dialogue; and

IV. *Conflict Resolution*: Resolving Conflicts to Achieve Goals.

I. Goals: Developing Goals and Identifying the Future Use of the Site

A critical ingredient underpinning the successes of federal facility cleanup's is the parties' alignment on the cleanup goals and the future use of the site (recognizing that each site took time to develop accepted goals). Equally important is the process the parties followed in developing the goals and future use scenarios. Without such an alignment, cleanup — much less a timely cleanup — would not be possible.

Recommendation #1: All Parties Must Collaborate — The federal government, local governments, community members, state and federal agencies, and Congress must collaborate when developing the cleanup and future use vision for the site.

The parties must agree on the cleanup purpose and long-term vision for the site. These visions create the frameworks from which expectations flow and cleanups are completed, so it is critical for the parties to come together early in the process and agree on a conceptual vision.

To be effective . . . the cleanup and future use visions must move beyond the conceptual level, and specific cleanup goals also must be identified, defined and agreed to by the parties.

To be effective, however, the cleanup and future use visions must move beyond the conceptual level, and specific cleanup goals also must be identified, defined and agreed to by the parties. This way, cleanup enables the future use of the site. The latter stages of cleanup at Mound have been clouded by a disagreement over the status of a site landfill. The Rocky Flats cleanup was marked by seven years of debate over soil cleanup levels that DOE and the regulators adopted but that the affected communities and their residents opposed. In both cases, the conceptual vision was largely shared, but the detailed cleanup levels, which in both cases necessitated long-term controls, were vigorously debated.

Recommendation #2: Know the Rules — The law defines the cleanup process and the opportunity to participate in the process.

The law governs the cleanup process and defines the roles therein for the federal government and state regulators. The rules identify the cleanup process, the land transfer process and the minimum public participation process of the federal agency conducting the cleanup and the federal and state regulators. All parties must know the law in order to understand their roles and how each can affect the cleanup process.

Guidance and policies help interpret the law, but the law is the reality. Policies are changed by the agencies, either at the federal or state levels. The laws can be changed and will likely change throughout the cleanup process. Communities should utilize knowledgeable federal and state officials to inform them of the rules, and ensure they inform the legislature on changes to the rules.

Recommendation #3: Understand Federal Agencies' Goals — The parties must consider the federal government's mission and goals.

The federal government's overriding mission in cleaning up contaminated sites is to mitigate the risks and associated liabilities, and to reduce, if not eliminate, its long-term costs. The federal government faces certain constraints when remediating a site (including internal policies, congressional mandates, regulatory requirements and funding restrictions) that must be recognized by all other parties and understood for their potential positive and negative impacts on the cleanup.

Recommendation #4: A Cleanup Contract with Defined Goals Must Be Used — Closure contracts, which serve a number of roles, must identify clear milestones, be communicated to all parties, be understood by the parties and be funded annually by Congress.

Without doubt, the contract between a federal agency and its primary cleanup contractor is critical to accomplishing cleanup. Among other things, the contract establishes the legal relationship among the contracting parties, defines the scope of work the contractor must accomplish to clean up the site, sets the cost to clean up the site and creates incentives to accomplish the cleanup mission (in a timely manner). Properly scoped contracts should (but often do not) mirror the regulatory agreements that drive federal facility cleanup projects.

The closure contracts, which serve a number of roles, must identify clear milestones, be communicated to all parties, be understood by the parties and be funded annually by Congress.

While the primary value of such contracts flows between the contracting parties, these contracts serve several other roles that are central to any successful cleanup project, including:

1. Establishing expectations among the parties;
2. Providing a cleanup vision for Congress to fund; and
3. Focusing the parties on the scope of work necessary to accomplish a cleanup that meets or exceeds regulatory requirements.

The Mound, Oak Ridge and Rocky Flats cleanups showed that these contracts serve another, vitally important role: they provide a basis for community members and Congress to gauge cleanup progress which in turn can increase trust and confidence in the cleanup.

Recommendation #5: Understand Community Values — To properly collaborate, the parties must work to understand the values of the community, and must work to incorporate such values into the planning process.

Successful environmental cleanups are not limited to only reducing risk and thus minimizing the federal government's liability. Success also is predicated on substantively

incorporating the local community's values into the cleanup process. In certain cases this has led to additional cleanup beyond a strictly risk-based cleanup.

The sole way to ensure sites are cleaned and are an asset for the local community is to engage local parties on how the cleanup and, more particularly, the future use goals support or help advance local needs. For example, designating Mound as a wildlife refuge, as was done at Rocky Flats, would have been fundamentally inconsistent with the local needs; reindustrializing Rocky Flats, as was done at Mound, would have likewise been inconsistent with core values held broadly by local governments and others in the affected community.

II. Actions: Accomplishing Cleanup by Focusing on and Refining Goals Throughout the Cleanup Process

A federal facility cleanup process, as the Oak Ridge, Mound, and Rocky Flats cleanups highlight, is iterative. In environmental cleanups not all of the issues, challenges, and opportunities are understood at the start of the cleanup process. The process necessitates a degree of flexibility, where communication must be dynamic. Successful cleanups, therefore, are able to integrate changes into the planning process.

Recommendation #6: Education Is Essential — The parties must take the time to educate each other on the technical and policy issues underlying the cleanup and to commit staff resources to engage each other. Discussions, which need to take place throughout the process, must also include the question of technical risk and perceptions of risk, recognizing perceptions of risks posed do not always align with the technical risk.

In terms of education, many elected officials, community activists, economic development leaders and others at DOE sites were extremely conversant about site issues. Such expertise in technical, policy and economic transition issues does not arise overnight; it is the result of significant effort on behalf of DOE, regulators and the cleanup contractor to educate the community about the issues that come together as part of the closure project.

The sole way to ensure sites are cleaned and are an asset for the local community is to engage local parties on how the cleanup and, more particularly, the future use goals support or help advance local needs.

There is no formula for how best to educate members of the community and local governments, but DOE and the regulators need to exert whatever time and effort it takes to educate the affected entities about the issues involved in site cleanups. While the parties need to develop mechanisms that address site-specific needs (*see Recommendation #14*), some specific steps each of the parties should take (*partially captured in Recommendation #11*) include:

- Hold regular technical meetings;
- Provide pre-decisional drafts of cleanup documents to the community;

- Provide local governments and other members of the community with broad access to federal site personnel;
- Hold regular meetings between the federal facilities manager and community members; and
- Educate new parties as they become involved.

Education by each party involved in the cleanup of other parties must occur regularly. The community must not only be educated by federal and state agencies and contractors, but the community must educate federal and state agencies and contractors so that they understand the goals and needs of the community and the history of the community.

DOE and the regulators need to exert whatever time and effort it takes to educate the affected entities about the various issues involved in site cleanups.

As for risk communication, the issue is vitally important for the parties to understand, especially those parties charged with implementing and regulating the cleanup. A party's acceptance of risk most often breaks between tolerated risks and non-tolerated risks, and does not necessarily track quantifiable, scientific risk. For this reason, one of the critical lessons learned from the success and challenges at the sites ECA investigated was the importance of developing and implementing a risk communication process. ECA therefore strongly recommends the federal government tackle the question of risk communication, for through such a dialogue lies the greatest chance that the various parties will be able to reconcile differing perspectives on the question of risk and thus reach agreement on difficult cleanup decisions.

Decisions, even technical ones, are not solely technically based. For that reason, the federal government and the regulators also must be educated about the perceptions among local governments and others within the neighboring community regarding risk (which generally vary from community to community and even within communities), because such perceptions may not be consistent with technical risks.

Recommendation #7: Congress Must Make Cleanup a Legislative Priority — Federal lawmakers should understand the needs of the parties involved and become intimately involved in cleanup decisions.

The active and consistent involvement of Congress in the cleanup process is central to DOE's successes. Congress, among its other roles, helps moderate discussions and improves the flow and effectiveness of the decision-making process. Toward this end, because the parties cannot effectively partner and negotiate without intimately understanding congressional politics, an effective partnership necessitates the active engagement of congressional staff in both Washington, D.C., and at the local level. Through this active engagement, the parties often are better able to remain aligned on the cleanup goals and mission, and Congress is better poised to support necessary action, such as appropriations or changes in law that can help facilitate the cleanup mission.

One of the benefits of a closer working relationship with Congress is that the parties, even when they disagree, work hard to ensure they do not surprise the other party when taking a stance that might be contrary to the others' position – and with this approach, trust develops that proved central to maintaining congressional support for the cleanup project.

Recommendation #8: Local Presence Facilitates Cleanup — The federal entity charged with cleaning up the site and the federal and state regulatory agencies must have a local presence and must address problems resulting from staff turnover that negatively affect cleanup and public involvement efforts.

Proximity of decision makers to the site and the neighboring community is vital to ensuring a healthy dialogue. Frequent contact between DOE, federal and state regulators, congressional staff, local governments, economic development entities, federal advisory boards, and others is essential.

. . . active and consistent involvement of Congress in the cleanup programs has proven central to DOE's successes in cleaning up its facilities.

A strong regulator proved to be essential to the numerous successes at Oak Ridge, Mound, and Rocky Flats, but that role can easily be compromised if the regulators are not part of the community in which the site is located. At Oak Ridge and Rocky Flats, DOE and the regulators have a local presence. At Mound, though, DOE moved the Ohio Field Office from Miamisburg to Cincinnati (40 miles away), which exacerbated an already strained relationship. When DOE and regulator personnel lived in and near the Mound site, they were able to make site decisions within the context of how such decisions affected the Mound community; conversely, the greater the distance the key decision maker lives from the affected community, the more likely he or she will perceive the concerns of that community as being merely theoretical.

Clearly the decision of where to site upper management hinges on a number of factors. The way to resolve this conundrum where key decision makers are not located near the federal facility is to authorize local staff to make decisions on behalf of the federal entity. That way, local governments and other community members will trust that they will be working with those making the decisions.

Recommendation #9: Federal Agency Leadership Sets the Tone — The federal entity charged with cleaning up a site must establish management policies that challenge the staff to complete the job, and broadly communicate agency policies to affected constituencies and to Congress.

Leadership at the highest levels within the federal agency charged with cleaning up the facility drives the cleanup program. These political appointees establish agency policies and priorities that, with Congress's support, establish the framework from which cleanup decisions are made and expectations flow. DOE's cleanup successes stem from effective leadership throughout the life of the cleanup program. Leadership, however, is not limited to effectively managing a large federal bureaucracy, although such leadership has been core to DOE's success.

Leadership means listening to those most affected directly by agency decisions (local governments and other community members) and promoting the programs to Congress.

For community members to effectively engage the federal government, they must spend time in Washington, D.C. meeting with agency heads to both understand agency priorities and to communicate the priorities of the local community. ECA believes that local governments' successes in representing their communities throughout the cleanup process were directly proportional to the time these community leaders spent meeting with agency and congressional leaders in Washington.

III. Communications: Engaging the Community Through Consultation, Coordination and Ongoing Dialogue

Community engagement is critical at all steps in the process — at the development of the vision, at refinement of the cleanup goals and priorities, and at all times where conflicts arise. An overriding principle is not divorcing process from substance. For the federal government the question of community involvement concerns whether more members of the public accepts and supports the process; for local governments and other community members the question is whether they obtain what they want at the site. And for both the question is prioritization — as not all issues are equally weighted. When process gets in the way of discussion a tension will arise. Hence the parties must continue to understand that the process must lead to consultation, coordination and communication.

Recommendation #10: All Parties Must Take Into Account Post-Cleanup Requirements – Cleanup completion typically means that contamination will be left in place; thus, identifying sources of long-term funding and clarifying the roles of the affected parties are essential.

Federal sites rarely are remediated to natural background levels; consequently, contamination usually is left in place when cleanup is "complete." Hence, the process of cleanup must recognize that ongoing management (often called long-term stewardship) of the remaining contamination will be required.

In order for cleanup projects to be ongoing assets for the affected community, the stewards must be identified and agreed to by all of the parties and have the funds necessary to implement long-term stewardship activities. Ideally, as cleanup actions are being designed, long-term funding management requirements and funding needs will be identified as well. Achieving this goal, however, has proven difficult.

Recommendation #11: The Parties Must Build a Working Relationship — All parties must take the necessary steps to develop and maintain trust, accountability and openness.

The Cold War demanded an umbrella of secrecy over the activities of DOE, resulting in the decision-making framework of "decide, announce and defend." Partnerships, which are based on trust, accountability and openness, require a fundamentally different paradigm. DOE

largely has moved away from its historic posture, but where the decision-making process is not open, community trust will be difficult to maintain.

Trust and accountability flow from the program mission and vision — without an agreement on the goals for the program and a vision for where to go, trust and accountability are difficult to achieve. At the sites ECA investigated, there are various ways DOE and the regulators have built trust and have been accountable. Parties at other facilities need to work together to understand the site-specific needs and develop the mechanisms to meet those goals.

All parties, not just the federal entity charged with cleaning up the facility, must be trustworthy and accountable. For example, at one site both local elected officials and members of DOE's advisory board did not meet the same standards of trustworthiness and accountability that were demanded of DOE. Such inconsistency is not lost on DOE and thus compromises the value and effectiveness of those community members when seeking to partner with DOE and the regulators.

. . . without an agreement on the goals for the program and a vision of where to go, trust and accountability are difficult to achieve.

Openness can be summarized by the following ideas, which ought to be embraced by officials at the local, state and federal levels:

1. Abide by the principle of "no surprises";
2. Be honest;
3. Provide regular information and brief your counterparts;
4. Identify for all parties any real or potential impediments to success;
5. Be available, which could mean talking with or meeting with your counterparts of the local community on a daily or weekly basis;
6. Share bad news when you get it;
7. Work off-line, as not all discussions should take place in public;
8. Respect the parties enough to say when you do not agree; and
9. Keep searching for ways to increase dialogue and openness.

Recommendation #12: Be Organized — Local governments and the community must be organized and proactive, and strive to speak with one voice.

DOE has invested considerable time, effort, and money over the past decade building and supporting community involvement through Environmental Management Site-Specific Advisory Boards (EM SSABs), and the investment has paid off through the organized, continuous involvement of a broad range of members from the local community. Throughout the DOE complex, EM SSABs have been to varying degrees integral to the successful partnerships between the federal and state agencies and the community. However, while these groups have served an important role in organizing community involvement, there are instances where EM

SSABs do not agree with the goals of locally elected officially and the local governments (and failure to recognize this issue slowed agreement on cleanup levels).

Had these governments not had the monies to engage in the manner and extent they did . . . it is likely Rocky Flats would have closed late and at an additional cost of hundreds of millions of dollars to the federal government.

At most sites DOE's Office of Environmental Management has put more effort into working with EM SSABs than working directly with local governments. ECA strongly believes this approach is problematic because local governments do not have the luxury of waiting for other parties, such as EM SSABs, to address their needs. Local governments must take the initiative to organize and engage the federal government, the cleanup contractor, the regulatory agencies, and Congress. Through local government organizations at Mound and Rocky Flats, for example, the local governments created the forum for them to identify jointly their interests and develop strategies for accomplishing their mutual goals. They created the means by which they could then engage the other parties — and to the degree they can speak with one voice their power and effectiveness is amplified.

A local governmental entity can engage the federal government, the regulators and Congress on site issues, and can use the collective position of the local governments to better discern what is in the public interest. By working with a single entity, such as a coalition of governments, the federal government, regulators and Congress gain an educated and informed partner whose collective position indicates what is in the public interest of local residents. Goals are more readily clarified because the parties have worked out their differences and minority views are in turn more easily identified and marginalized. By taking these steps the federal government helps build credibility with local governments and with Congress which can help serve to provide political cover, especially against minority factions from within the local community.

Recommendation #13: Resources Ensure Parties Can Participate — The federal government and Congress must provide regulators and communities with the financial resources necessary to organize and retain the staffing resources they need.

Without federal funding, local governments and community organizations will struggle to secure the funds necessary for them to be able to actively engage on site issues. Without the means to partner effectively, the successful transition of the site to a continuing asset for the local community is compromised.

Federal facility cleanups in the 1980s and 1990s were based on litigation and little was accomplished. Where cleanup did occur, the federal agency would submit the cleanup paperwork to the regulators who would then take months to review and approve that the cleanup was complete. Eventually, the EPA brought together the federal agencies and state regulators for meetings which ultimately assisted in the creation of agreements that permitted federal funding for state regulators. This ensured that states had the staff to work with the federal agency on

cleanup issues. For example, at Mound, Oak Ridge and Rocky Flats, DOE funding provides for state regulators to participate and facilitate the cleanup process. Similarly, DOE funding allows EM SSABs, tribes and some local government groups to participate in cleanup decision making, helping to build trust among all the stakeholders. Significantly, none of the interviewees believe that the funding compromises their independence from DOE.

By working with a single entity, such as a coalition of governments, the federal government, regulators and Congress gain an educated and informed partner whose collective position indicates what is in the public interest of local residents.

Rocky Flats provides a prime example. From 1999 to 2005, DOE, through congressional appropriations, provided the Rocky Flats Coalition of Local Governments approximately $2 million to support their efforts. Had these governments not had the monies to engage in the manner and extent they did, but were otherwise sufficiently organized to hinder the process, it is likely Rocky Flats would have closed late and at an additional cost of hundreds of millions of dollars to the federal government.

Recommendation #14: Following the Minimum in the Law Is Not Enough — Minimum regulatory requirements are insufficient to support substantive public involvement; the parties must develop public involvement processes that are tailored to site-specific needs, recognizing that process is different from negotiations.

Frequently, the most difficult challenge the federal and state parties face in engaging the local governments and other community members is in identifying the purpose of any public involvement process. A public involvement process for the sake of process will yield little positive results and will not serve to support a timely cleanup. Because federal environmental laws include specific provisions for community involvement, the agencies charged with managing and regulating the cleanup often strictly (and narrowly) follow public involvement processes as laid out in applicable regulations.

A public involvement process for the sake of process will yield little positive results and will not serve to support a timely cleanup.

However, strictly following regulatory minimums ensures openness but may not support a productive partnership, nor would it likely achieve timely cleanup. A process that all entities can agree on needs to evolve and ensure trust and communication are built at a site. For that reason, the parties charged with cleaning up a site and those charged with regulating their cleanup activities need to be clear on the point of public involvement processes. For the federal government and the state regulators, the greatest challenge is not whether federal and state regulations and policies allow the parties to partner with local governments and other members of the local community, for they do. Rather, engagement fundamentally involves whether the federal government and the state regulators view working with local governments and other community members as another box they will need to check to meet minimum regulatory requirements, or whether they believe, as ECA does, that engaging affected community members improves the

decision-making framework. If the answer is not the latter, then conflicts are increasingly likely to arise and prove difficult to resolve.

IV. Conflict Resolution: Resolving Conflicts to Achieve Goals

Partnering on environmental cleanups can be messy and conflicts can arise at any point and for many reasons: when the decision to close a site is made, when establishing cleanup levels, or when determining the future use of the site. Often in complex environmental cleanups, the full extent of the contamination is not known at the start of the project, so decisions need to be refined throughout the process, highlighting the need for effective conflict resolution.

Recommendation #15: Engage Each Other Regularly — The parties must substantively engage each other throughout the entire cleanup and reuse planning process.

The best way to resolve conflicts is to build a dialogue and be committed to the other recommendations outlined in this document. The ability to resolve conflicts flows directly from engaging in a dialogue at the start of the process when goals are being defined and cleanup strategies are being developed.

Since cleanup began in earnest at the three sites ECA examined, the common denominator underlying why conflict arose was that local governments and other members of the community were not engaged in the process and/or these parties and the decision makers (DOE and the regulatory agencies) could not come to agreement on levels of risk. Such conflicts, which in the case of Mound and Rocky Flats necessitated congressional involvement, can and should be proactively addressed.

Chapter 1
Introduction

In October 2006, the Department of Energy (DOE) announced the completion of cleanup activities at the former Fernald nuclear weapons plant. A similar announcement is expected in 2007 regarding the former Mound facility. News from these two southwestern Ohio sites comes on the heels of the October 2005 announcement that Rocky Flats, one of the major nuclear weapons production facilities in the DOE complex, was cleaned and closed years ahead of the original DOE schedule, thereby saving the federal government billions of dollars over initial cost projections.[1]

"… successful environmental cleanups hinge on the ability of the parties to jointly solve the many technical and political challenges that arise."

There are many reasons why DOE was able to accelerate the remediation of these sites — the support of Congress, institutional changes within DOE, well-scoped regulatory agreements, a committed workforce, and community support of the change in mission and cleanup project, to name just a few. This report highlights many of the critical aspects of the federal government, communities, local governments and state regulators' success and lessons learned. ECA provides a roadmap that the parties (the federal agency conducting the cleanup, local governments, community members, and state and federal regulators) can employ to establish a working relationship that supports the active involvement of communities in other Federal cleanup actions.

ECA's recommendations and findings (which were developed following interviews with local elected officials from several municipalities, state and federal agency personnel, including

[1] "Nuclear Cleanup of Rocky Flats: DOE Can Use Lessons Learned to Improve Oversight of Other Sites' Cleanup Activities," U.S. Government Accountability Office, July 2006.

Politics of Cleanup

DOE and U.S. Environmental Protection Agency (EPA) officials, contractors and active community leaders) focus on four steps in the cleanup process:

I. *Goals*: Developing goals and identifying future uses of sites.

II. *Actions*: Accomplishing cleanup by focusing on and refining goals throughout the cleanup process.

III. *Communication*: Engaging the community through consultation, coordination and continuing dialogue.

IV. *Conflict Resolution*: Resolving conflicts to achieve goals.

As explained in the Foreword, the title of this report, *The Politics of Cleanup,* recognizes that successful environmental cleanups hinge on the ability of the parties to jointly solve the many technical and political challenges that arise. Issues that have challenged federal and state agencies, Congress, tribal governments, local governments, and community members have included identifying the future use of the site, determining final cleanup levels, and developing and implementing strategies to evaluate and address the impacts of site decisions on the social and economic health of the region. Addressing these and other issues and developing broadly supported solutions serve as catalysts for moving environmental cleanups from strictly technical projects to broad-reaching dialogues about what it means to partner and ensure the success of cleanup projects.

Typical Participants in a Federal Facility Cleanup:

President
Congress
Responsible federal entity
Environmental Protection Agency
State regulators
Tribal government
Local government
Community members
Federal contractor(s)
Non-profit activist organizations

This report responds to a congressional mandate. In the Senate report accompanying the fiscal year 2005 National Defense Authorization Act, Congress identified the need for sharing the lessons learned in partnering with communities to accelerate environmental cleanups at DOE nuclear weapons sites:

> *The committee notes that the fiscal year 2005 budget request for Environmental Management (EM) will be the last full fiscal year authorization and appropriation for cleanup at the Rocky Flats Environmental Technology Site (Rocky Flats), the Fernald Environmental Management Project (Fernald), and the Miamisburg Environmental Management Project Mound Site (Mound). The committee applauds the level of priority and focus DOE and management within the Environmental Management Program have placed on cleaning up these three EM sites decades ahead of the original baseline schedule and at a savings of tens of billions of dollars.*
>
> *The committee encourages DOE to reach out to the communities at the 2006 closure sites and determine what lessons can be learned to help accelerate cleanup and thereby reduce the safety and health risks at the remaining major*

> *EM sites. In 1995, when a few individuals at Rocky Flats, Fernald, and Mound first began discussing closure of these sites as much as 60 years ahead of schedule, there were many more skeptics than believers in the accelerated closure approach. At that time, the contractors were required to merely meet compliance milestones, not to do cleanup. These three sites have proven that by reducing the highest risks first, the risk of exposure to the workers, environment, and communities was reduced, and accelerated cleanup has significantly reduced the life cycle cost.*[2]

ECA, a coalition of city and county governments and community development organizations adjacent to DOE facilities, understands first hand the benefits and challenges of partnering with communities to improve the cleanup process. Because of its extensive work with DOE, Congress, and regulatory agencies, ECA received a DOE grant to carry out Congress's mandate. After consulting with DOE, ECA substituted Oak Ridge, a site with an ongoing mission, for Fernald, a site that closely resembles the cleanups at Rocky Flats and Mound and that likely would have yielded similar findings. This report documents the goals, decision-making mechanisms and missteps of the parties involved in accelerated cleanup programs, as well as the relationships among the parties. ECA believes what Congress was seeking to understand were the challenges, opportunities and critical alliances among the parties. Those strategies are the lessons learned that can and should be appropriated for use at other sites.

Demolition activities at Rocky Flats

To understand the importance and complex nature of cleaning up weapons facilities, one must understand the historical context of the nuclear weapons complex and the creation of communities surrounding these facilities. The legacy of nuclear weapons production is mixed. Weapons production brought great economic vitality to regions of the country but left many of these areas with varying degrees of contamination and the stigma of being a "nuclear city." This legacy looms large in the minds of local officials as they grapple with the socioeconomic impacts stemming from environmental contamination and the resulting widespread perceptions and fears from residents as well as those living outside of the community.

To help frame the issues, the report weaves in the history of the U.S. nuclear weapons complex in general and the Rocky Flats, Oak Ridge and Mound sites in particular.

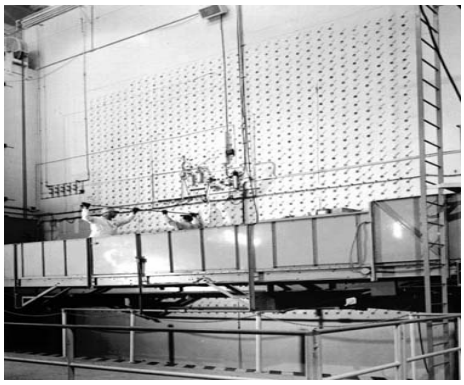
History and Role of the Nuclear Weapons Complex

The history of nuclear weapons production is well documented. In 1942, the Manhattan Engineering District, known as the Manhattan Project, was formed to develop an atomic bomb

[2] Senate Report 108-260 to the FY 2005 National Defense Authorization Act (P.L. 108-375).

and gain a critical strategic advantage over Germany and Japan during World War II (WWII). Los Alamos, New Mexico, was selected as the site for the laboratory with research led by American physicist Robert Oppenheimer.

As part of this effort, people were displaced and new communities were, in time, developed. In early 1942, in dense woodlands 30 miles from Knoxville, Tennessee, nearly 1,000 farmers were forced to leave so that the federal government could build the Oak Ridge Gaseous Diffusion Plant. Overnight tens of thousands of workers built three industrial facilities to house the first full-scale nuclear reactor and to enrich uranium. In early 1943, in New Mexico, the U.S. government created an outpost that eventually became the Los Alamos National Laboratory. Also that year, 1,500 people from small farming and ranching communities in Hanford, Richland and White Bluffs, Washington — communities along an isolated stretch of the Columbia River — were moved from their land and homes to accommodate the construction of Site W, the Hanford Engineering Works (now called the Hanford Site).[3]



Oak Ridge National Laboratory Graphite Reactor

Following the end of WWII, the U.S. government recognized it needed to expand its nuclear weapons capability. Part of the equation included creating in 1946 the Atomic Energy Commission (AEC) to replace the Manhattan Project. Following an imperative to decentralize weapons research and production, AEC placed major plants throughout the country supported by federal laboratories and smaller sites.

Glove box work at Rocky Flats

The nuclear weapons complex soon spanned 16 major facilities including the desolate Nevada Test Site, research laboratories in New Mexico and California, and weapons production plants in Colorado, Florida, Missouri, Ohio, Tennessee and Washington.[4]

Factors underlying the siting of the Manhattan Project and later facilities included access to water, skilled construction and production workers, and scientists. Remote areas were chosen in order to minimize potential widespread damage caused by accidents and to ensure security.

[3] "History of the Plutonium Production Facilities at the Hanford Site Historic District, 1943-1990," Hanford Cultural and Historic Resources Program, U.S. Department of Energy (June 2002), 1.12.
[4] "Closing the Circle on the Splitting of the Atom," U.S. Department of Energy, Office of Environmental Management, January 1996.

Weapons production dramatically increased in the years following WWII. Under President Harry Truman's guidance in 1950 the hydrogen bomb program moved into full production. As a result, residents of Ellenton, South Carolina, were forced to abandon their homes to make way for a new plant, the Savannah River Plant. In 1951, AEC decided to build the Rocky Flats Plant on a windswept escarpment on the outskirts of Denver, Colorado.

As tensions between the United States and the Soviet Union rapidly increased so too did production of nuclear weapons. Communities sprang up around these once-remote areas — towns were plotted, infrastructure was built, and municipal governments were established, all in support of the Cold War. While there was lingering resentment among some of the displaced residents, these new weapons facilities meant high-paying jobs, well-funded schools, and safe places to raise families. Patriotism was a core value that united each nuclear community, where the workers and their families took great pride in protecting the nation.

Workers' health and environmental conditions surrounding the sites suffered greatly as a result of the rush to produce nuclear weapons, a legacy that still is felt today. Local governments and community members, who remained fiercely patriotic and supportive of weapons production, finally began asking questions about the safety of the plants, no longer taking for granted the federal government's assurances that the work was safe. In 1969, a plutonium line at the Mound site ruptured, ultimately contaminating the Miami-Erie Canal. Also that year, a massive fire at Rocky Flats badly damaged a critical plutonium production facility. When community members pressed AEC for answers as to why plutonium was discovered on off-site lands by county officials, AEC admitted that an earlier fire in 1957 and an outside drum storage area, not the 1969 fire, were the source of the off-site contamination. In 1973 the Colorado Department of Health announced tritium had been detected in drinking water supplies downstream of Rocky Flats. The story was the same at other sites around the country.

Then in 1989, the Berlin Wall was reduced to

Timeline of Major Environmental Laws, Policy Initiatives, and Decisions Affecting Nuclear Facilities and Cleanup Programs

1942	Manhattan Project is formed.
1945	U.S. explodes first atomic device in New Mexico test; drops two atomic bombs on Japan.
1946	Atomic Energy Act signed. Atomic Energy Commission (AEC) replaces Manhattan Project.
1953	President Eisenhower gives "Atoms for Peace" speech.
1955	Atomic Energy Community Act becomes law.
1957	International Atomic Energy Agency formed.
1968	Nuclear Nonproliferation Treaty signed.
1970	National Environmental Policy Act becomes law.
1974	Formerly Utilized Sites Remedial Action Program created.
1974	Energy Reorganization Act eliminates AEC and creates Energy Research and Development Administration (ERDA) and Nuclear Regulatory Commission.
1976	Resource Conservation and Recovery Act (RCRA) becomes law.
1977	Department of Energy (DOE) replaces ERDA.
1978	Uranium Mill Tailings Radiation Control Act becomes law.
1980	Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) becomes law.
1983	Nuclear Waste Policy Act becomes law.

rubble, signaling the end of the Cold War. DOE began consolidating its operations, which included closing some weapons facilities and reducing or changing the scope at others. Mound, Rocky Flats and other facilities would be closed. Oak Ridge would continue as a weapons plant but certain nuclear operations were curtailed while other missions were created. (As DOE was closing these sites, the Department of Defense (DOD) was likewise consolidating operations by closing many of its bases.) The veils of secrecy were lowered which led to increased local government and community interest and involvement in these secret facilities. Cleanup, not buildup, became the focus — and with this change of mission, "public involvement" became part of the DOE (and DOD) lexicon. In order to begin the cleanup, the community first had to agree with the federal government's decision to close the site or otherwise curtail production work.

In the early 1990s, DOE staff and contractors who ran the DOE sites, which just a couple of years earlier were producing nuclear weapons parts, were asked to begin cleanup of the sites. The DOE people whose job it was to keep information from the community were suddenly thrust out into the public arena and were told to communicate with the local citizens and state regulators on the cleanup. Hence, DOE staff and contractors were asked to do jobs that they were neither trained nor experienced in undertaking.

Congress and DOE invested hundreds of millions of dollars into the DOE weapons complex in the 1990s in order to try to transition the communities' reliance on DOE for jobs and to begin to address the massive amounts of environmental contamination at the sites. No one had ever undertaken such a process. The environmental regulators had experience in the 1980s in addressing private and some federal contaminated sites, but the scope of the DOE sites was beyond anyone's experience. By all accounts, no clear roadmap existed.

The first attempts at "public" involvement

Timeline (cont'd)

1984	*Legal Environmental Assistance Foundation v. Hodel* court decision concludes that RCRA applies to DOE.
1986	Superfund Amendments and Reauthorization Act passes.
1987	Intermediate-Range Nuclear Forces Treaty is signed.
1989	First DOE Five-Year Plan establishes 2019 as goal for completing cleanup of weapons production facilities.
1989	DOE forms Office of Environmental Restoration and Waste Management, later called the Office of Environmental Management (EM).
1992	Federal Facilities Compliance Act becomes law.
1995	First Baseline Environmental Management Report (BEMR) published
1996	DOE's "Ten-Year Plan" introduced. Revised Baseline Environmental Management Report (BEMR) published.
1998	DOE publishes "Accelerating Cleanup: Paths to Closure."
1999	EM forms Office of Long-Term Stewardship.
2000	DOE and Kaiser-Hill sign first closure contract in DOE complex.
2001	Top-to-Bottom Review of EM announced.
2001	DOE publishes "Long-Term Stewardship Study Volume I — Report."
2002	DOE publishes "Long-Term Stewardship Planning Guidance for Closure Sites."
2003	DOE begins risk-based end states process.
2005	Rocky Flats cleanup project completed.

centered on the legal requirements. The community activists that were organized around the sites at the time were primarily anti-nuclear weapons activists. The state regulators were arguing with EPA, DOE and DOD over their rights to regulate federal cleanup activities. Local governments were primarily concerned with saving jobs and did not have experience working on cleanup. Tribal governments that were involved with the sites were not given government-to-government recognition by the federal agencies.

This backdrop eventually led to changes. The changes led to organization, sophistication, and a process. In the end, it has led to trust and a working relationship between all of the parties.

Foundation for Remediation

While the production of nuclear weapons is well documented, less known are the environmental legacy and broad-reaching efforts that the federal government, state governments and municipalities needed to take to clean up the extensive environmental contamination resulting from 50 years of weapons production. To accomplish this enormous task, estimated to cost the federal government hundreds of billions of dollars (not including additional direct costs to state governments and municipalities), four related factors needed to come together to create the foundation to remediate these sites

1. Establish the legal basis for remediating contaminated sites.
2. Develop DOE political support for the cleanup.
3. Develop congressional support for cleanup.
4. Develop community support for cleaning up sites.

1. Establish the legal basis for remediating contaminated sites

National concerns about environmental contamination led to the adoption of major laws that would form the legal basis for remediating contaminated sites. As noted in a 2001 report on long-term stewardship:[5]

> *DOE's interest in remediating environmentally contaminated property to protect human health and the environment stems from federal laws requiring federal agencies to remediate the environmental contamination caused by their activities. … Most of DOE's cleanup activities are conducted under the Atomic Energy Act (AEA),[6] which directs DOE to manage radioactive materials in a manner consistent with the protection of health and safety of the public. The AEA authorizes DOE to establish standards to protect human health and the environment from activities under DOE jurisdiction. The cleanup of hazardous substances on DOE property proceeds under CERCLA,[7] state hazardous waste*

[5] "The Role of Local Governments in Long-Term Stewardship at DOE Facilities," Environmental Law Institute and Energy Communities Alliance (2001), 5-6.
[6] 42 U.S.C.§§ 2011, et seq.
[7] Comprehensive Environmental Response, Compensation and Liability Act, as amended, 42 U.S.C.§§ 9601, et seq.

> *laws, and/or the Resource Conservation and Recovery Act (RCRA).*[8] *These laws explicitly require the entity that causes the contamination to pay for the remediation of the contaminated property. The federal environmental laws apply to DOE because the federal government's sovereign immunity is waived under these laws.*

These laws later were supplemented with actions by the EPA and state environmental regulators to secure, with certain restrictions, the regulation of radioactive and hazardous wastes. EPA regulations for implementing CERCLA establish nine criteria for evaluating remedy selections, as follows:[9]

> *Threshold Criteria*
>
> 1. Overall protection of human health and the environment. Alternatives are assessed to determine whether they can adequately protect health and the environment, in the short- and long-term.
>
> 2. Compliance with Applicable or Relevant and Appropriate Requirements (ARARs). Each alternative must comply with chemical-, action- and location-specific ARARs. ARARs can be established under federal or state law. If an alternative cannot achieve compliance, justification for a waiver of the ARAR must be developed.
>
> *Primary Balancing Criteria*
>
> 3. Long-term effectiveness and permanence. Alternatives must be assessed for the long-term effectiveness and permanence they afford, along with the degree of certainty that the alternative will prove successful.
>
> 4. Reduction of toxicity, mobility, or volume through treatment. The degree to which alternatives employ recycling or treatment that reduces toxicity, mobility, or volume shall be assessed, including how treatment is used to address the principal threats posed by the site.
>
> 5. Short-term effectiveness. The short-term impacts of alternatives shall be assessed considering the following: risks posed during implementation; potential impacts on workers during remedial action and the effectiveness and reliability of protective measures; potential environmental impacts of the remedial action and the effectiveness and reliability of mitigative measures during implementation; and the amount of time until protection is achieved.
>
> 6. Implementability. The ease or difficulty of implementing the alternatives shall be assessed by considering technical and administrative feasibility.

[8] 42 U.S.C.§§ 6901, et seq.

[9] The remedy selection criteria are set forth in 40 C.F.R. §300.430(e)(9)(iii). The summary of the criteria listed here is adapted from the list found in "The Role of Local Governments in Long-Term Stewardship at DOE Facilities."

7. Cost. Capital, annual operation and maintenance (O&M), and the net present value of capital and O&M costs should be considered.

Oak Ridge billboard, 1940s

Modifying Criteria

8. State acceptance. As a regulator, the state has direct input on the remedy by commenting on the remedial investigation/feasibility study (RI/FS).

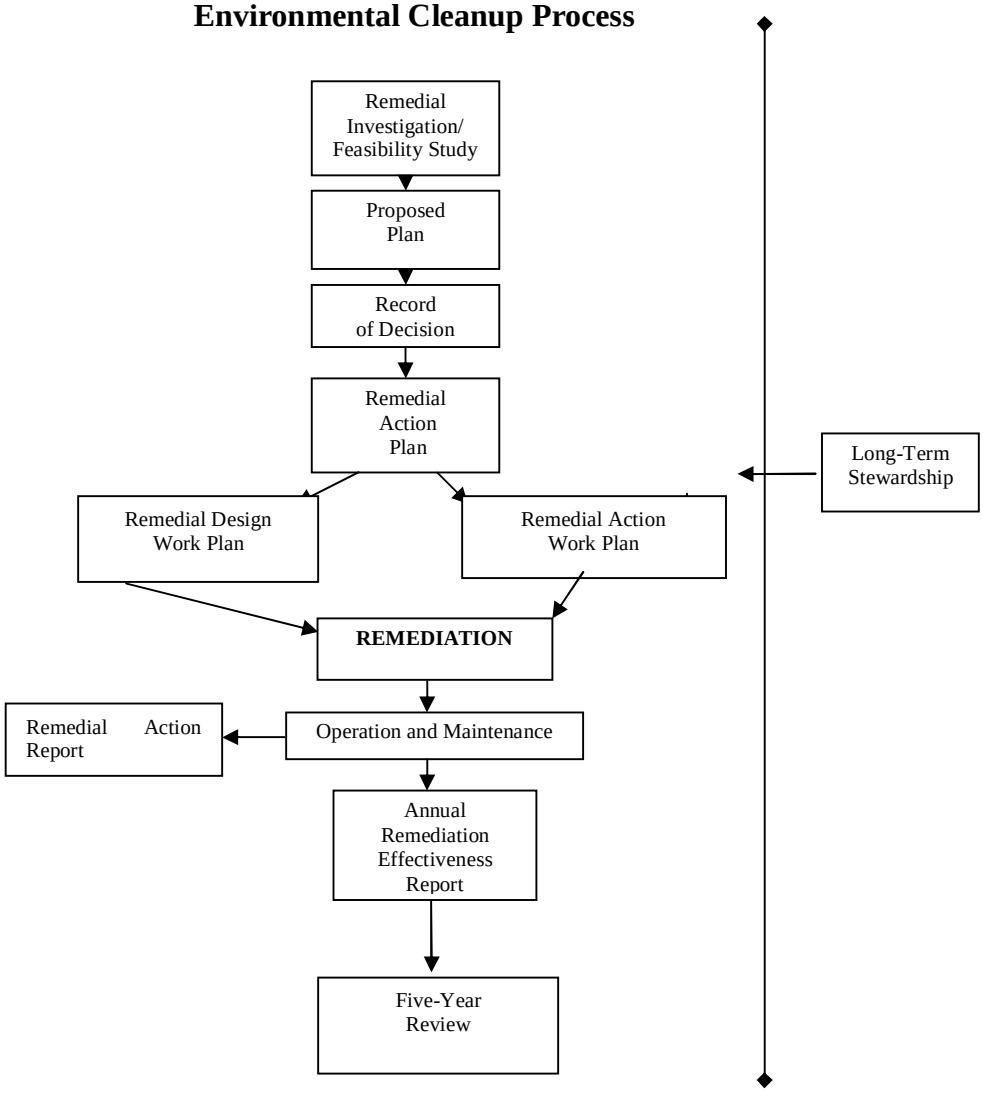
9. Community acceptance. This assessment includes determining which components of the alternatives interested persons in the community support, have reservations about, or oppose. This assessment may not be completed until comments on the proposed plan are received.

To put this legal remedy-selection process in context, a party must understand the practical, less formal steps to becoming engaged in the cleanup process. The technical cleanup process is set forth in Figure 1-1. From its research, ECA offers the following non-technical (but practical) cleanup process:

1. Identify the Environmental Contamination.
2. Communicate with the affected parties and decision-makers, including with Congress.
3. Understand the issues and the process, including the regulatory process.
4. Identify the parties, the decision-makers within the parties, and the goals for each party.
5. Develop attainable short-term and long-term goals.
6. Identify opportunities to forge a common ground and form coalitions as opportunities allow.
7. Understand the politics and ensure the political leaders are informed and on-board with the cleanup and future use goals.
8. Understand the federal budget process and the impacts on the cleanup.
9. Learn the technical issues and identify opportunities and constraints that define what is technically attainable.
10. Understand the steps taken to clean up the site:
    a. Identify cleanup options and make sure all parties understand them.
    b. Empower all parties to provide input into the decision-making process.
    c. Understand that parties will be adverse.
    d. Provide technical assistance for local governments and community groups, as such assistance helps build understanding and trust.
    e. Work together to determine the future use of the site.
    f. Decide on cleanup levels and understand risk and costs.
    g. Understand future responsibilities for waste remaining in place.
    h. viii. Work together once decisions are made to accomplish the goals.
11. Develop the right contract for the budget, site, risk tolerance, and technical capability.

12. Plan for cost overruns and changes in plans and budgets.
13. Be persistent.
14. Repeat the steps above several times as new personnel become involved in the cleanup process, and as the rules and funding of the cleanup process change.

Figure 1-1
Environmental Cleanup Process

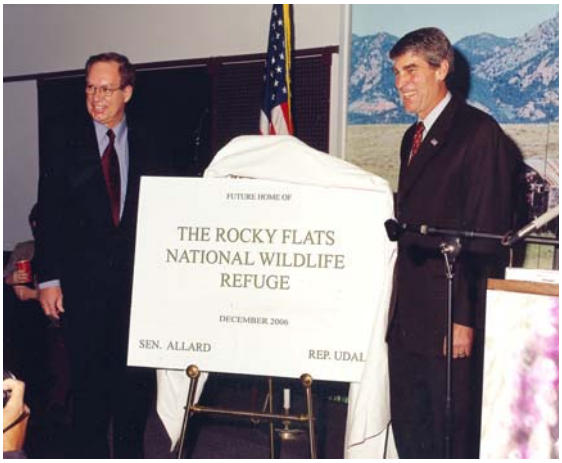


2. Develop DOE political support for cleanup

Cleaning up Rocky Flats, Mound and Oak Ridge could not have happened without political support from DOE. Federal support for nuclear weapons complex site cleanups began in 1989 with the establishment of DOE's Office of Environmental Management (EM), initially called the Office of Environmental Restoration and Waste Management. The office expanded

DOE's focus from nuclear materials and weapons production to include environmental cleanup.[10]

Creating EM was an important first step in garnering political support, but institutional change within DOE and a push from Congress were needed. Congressional frustration with prospects for site cleanups bubbled up in 1995 when DOE released its first Baseline Environmental Management Report (BEMR). BEMR estimated that the EM cleanup program would cost between $200 billion and $350 billion and take 75 years to complete.[11] Congress considered the cost and time to complete cleanup unacceptable, so lawmakers began pushing DOE to revise its approach to site remediation.



Senator Allard and Congressman Udall announce
Rocky Flats National Wildlife Refuge

In a major shift in policy one year later, EM Assistant Secretary Alvin Alm directed sites to develop 10-year cleanup plans. EM previously revised its program annually, but Alm reasoned that comprehensive, long-range plans would create "reliable baselines and a plan for the future."[12]

> *The tenyear [sic] vision recognizes that the time table for cleanup suggested in the 1996 Baseline Report is too slow. … We need to make progress sooner. Not only will quicker progress help reduce risks to human health and the environment, but it will also greatly reduce the total cleanup costs. … Another change that we are making is to integrate this type of life cycle planning into our regular budget and planning processes. We have begun doing this in the new tenyear [sic] planning process that will define new, nearterm[sic] objectives, greatly accelerate the pace of cleanup, and reduce related costs.*[13]

This directive was followed in June 1998 by EM's release of "Accelerating Cleanup: Paths to Closure," a strategy document for how to accelerate site cleanups and improve the performance of EM. In an effort to garner community support, one year earlier EM submitted a draft of the plan to states, regulators, tribal nations and other stakeholders to get their comments. These steps marked greater openness by EM and helped lay the foundation to increasingly involve those most directly impacted by site cleanup projects.

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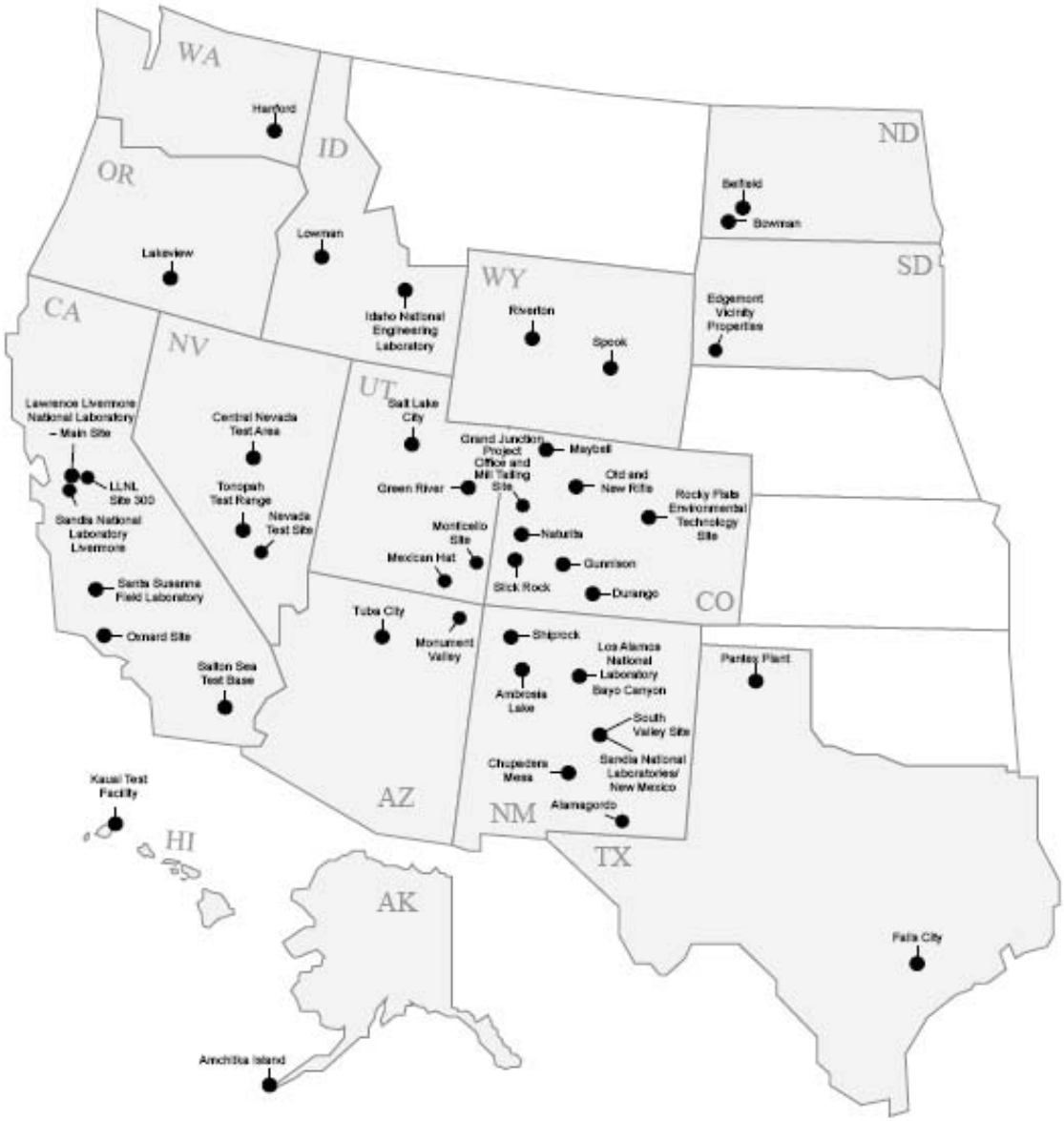
[10] EM's primary activities include: (1) environmental restoration; (2) waste management; (3) nuclear material and facility stabilization; (4) technology development; and (5) landlord functions (e.g., fire-fighting response, road maintenance, utilities).

[11] "Estimating the Cold War Mortgage: The 1995 Baseline Environmental Management Report," U.S. Department of Energy, March 1995.

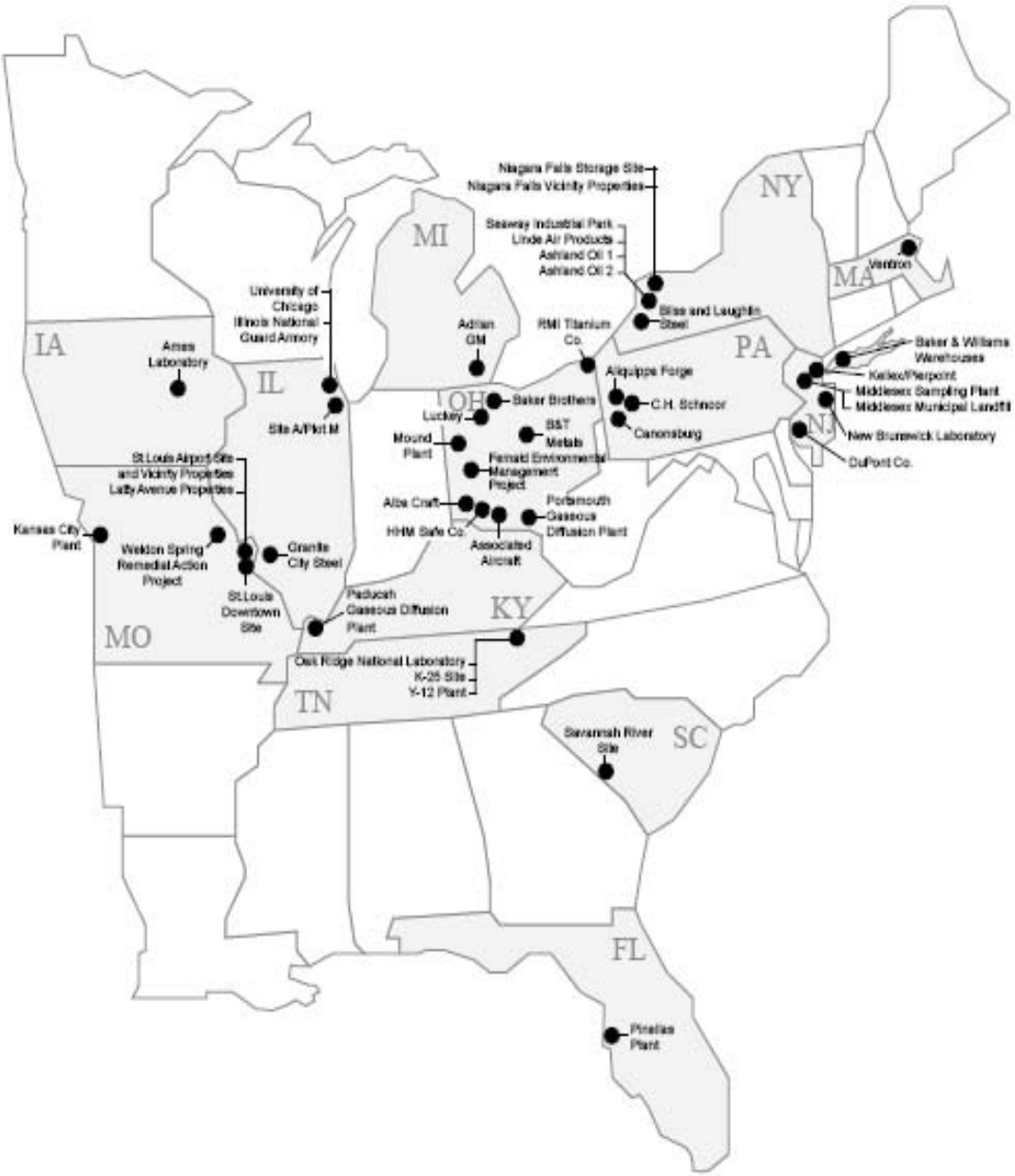
[12] "Accelerating Cleanup: Focus on 2006 Discussion Draft," Message on the 2006 Plan from Assistant Secretary Alvin L. Alm (June 1997).

[13] "1996 Baseline Environmental Management Report," U.S. Department of Energy (July 1, 1996).

Major U.S. Department of Energy Sites



Related to the Weapons Complex[14]



[14] Linking the Legacies, U.S. Department of Energy, DOE/EM-0319 (January 1997).

Politics of Cleanup

Despite successes in cleaning up sites, DOE recognized it could improve. In February 2002 EM released a programmatic review of its cleanup program and management systems, with the goal of quickly and markedly improving program performance.[15] This programmatic review reached some stark conclusions that underscored "a systemic problem with the way EM has conducted its activities." (As a result of this review, EM instituted numerous internal policies that serve to more closely link cleanup remedy decisions with plans for future use of sites.) The conclusions were:

- The manner in which EM develops, solicits, selects, and manages many contracts is not focused on accelerating risk reduction and applying innovative approaches to doing the work.
- EM's cleanup strategy is not based on comprehensive, coherent, technically supported risk prioritization.
- EM's internal business processes are not structured to support accelerated risk reduction or to address its current challenge of uncontrolled cost and schedule growth.
- The current scope of the EM program includes activities that are not focused on or supportive of an accelerated, risk-based cleanup and closure mission.

3. Develop congressional support for cleanup

As part of its support for the cleanups, Congress in 1999 created the Defense Facilities Closure Projects appropriations account to separately fund cleanups of Rocky Flats, Mound, Fernald and a few other small sites in Ohio. The account was created to protect cleanup funds slated for these closure sites from being diverted to other DOE sites. If cleanups at these sites were to be successful, reliable funding was necessary — and at the time DOE and Congress argued that once the above-mentioned sites were cleaned, the funds dedicated to these sites would be shifted to help accelerate cleanups at other sites. This funding promise was central to building support within Congress. The closure projects funding and cleanup plans created expectations and commitments that, when coupled with progress at the sites, brought a multiyear project management approach to a previously haphazard approach to complex environmental cleanups.[16]

Throughout the post-Cold War years, DOE's cleanup budget (EM budget) increased. The politics involved in the EM budget included an annual program change or announcement of a new and improved method of conducting cleanup by EM to Congress. Another key was support from most of the "cleanup communities" and congressional representatives (including the creation of a "cleanup caucus" in the House of Representatives and the Senate in the late

[15] "A Review of the Environmental Management Program," Top-to-Bottom Review Team (February 4, 2002).

[16] As Congress was establishing the closure account, Robert Card, the President and CEO of Kaiser-Hill, the prime cleanup contractor at Rocky Flats, who later served as DOE's Under Secretary, argued that cleanup projects, from a work scope and project funding approach, should be managed and funded in the same manner that DOD and Congress fund multiyear projects such as building naval vessels or military aircraft. The closure account marked a turn in that direction.

1990s). Further, EM contractors invested heavily in lobbying campaigns to ensure support for each contractor's cleanup activities at various sites. In the late 1990s, each community around a site, the local government, businesses (primarily by prime contractors and their subcontractors), citizen groups, and states lobbied Congress to support the cleanup program and changes in the cleanup program laws. Similarly, national intergovernmental associations helped to raise awareness of the role of local governments in the cleanup process. Regular meetings with congressional members, by all parties, ensured that the "politics" supported the cleanup program and EM budget.

Office of Environmental Management Funding, FY 1997 to FY 2006

1997	**$6,372,141,000**
1998	**$6,206,593,000**
1999	**$6,218,073,000**
2000	**$5,948,701,000**
2001	**$6,412,494,000**
2002	**$6,699,557,000**
2003	**$6,808,000,000**
2004	**$7,007585,000**
2005	**$7,276,168,000**
2006	**$6,590,250,000***

*2006 funding decrease due to responsibility for closure sites moving to the Office of Legacy Management.

4. Develop community support for cleaning up sites

Community support of the cleanup in general, and local government support in particular, has been central to developing and maintaining political support for the DOE cleanup program. In order for communities to support cleanups, they first need to accept the change of mission and loss of jobs and then opt to engage in the myriad decisions that constitute the cleanup process. Once engaged on the new mission, such involvement has been vitally important in assisting DOE and its contractors to meet aggressive timelines and reducing risk so that sites can remain or again become assets for the local community. The Mound, Oak Ridge and Rocky Flats cleanups, which are the focus of this report, present three different models for how DOE, the regulatory agencies and Congress can effectively work with communities neighboring the sites to help accelerate environmental remediation projects.

There are numerous issues driving community involvement in nuclear cleanup and reuse projects. As ECA and the International City/County Management Association noted in their 1996 report, "Cleaning Up After the Cold War: The Role of Local Governments in the Environmental Cleanup and Reuse of Federal Facilities," local governments "have a fundamental responsibility to protect the health, safety, quality of life, and economic future of the community."[17] With the end of the Cold War, both DOE and DOD began releasing more

[17] For a more thorough discussion of this topic, please see "Cleaning Up After the Cold War: The Role of Local Governments in the Environmental Cleanup and Reuse of Federal Facilities" (Washington, D.C.: ICMA/ECA, 1996), 1-4.

information about their respective sites to the adjacent communities, which directly led to increased local government interest in site activities:

> Placement of DOD facilities on base realignment and closure lists motivated local officials … to become actively involved in the base's activities. Similarly, at DOE sites, the availability of new information served as a catalyst for host local officials to become involved as they began to address constituent concerns.[18]

Local governments are particularly attuned to economic issues — first fighting the decisions to close the site, then ensuring production workers get the first shot at cleanup jobs, and eventually turning to economic transition issues. These governments also recognize the interconnection between environmental and economic health, as a healthy economy demands a healthy environment. They have thus expended significant resources to track and engage issues related to the clean up of these contaminated facilities.

Rocky Flats Drums in 1980s

[18] Ibid., executive summary.

Chapter 2 Recommendations: Elements of Creating a Successful Cleanup

Overview

Successful environmental cleanups hinge on a multitude of actions, including: congressional support for the cleanup, adequate funding, commitment of the federal and state agencies to accomplish the mission, development and application of technologies, a committed workforce, and a proven track record that cleanup dollars spent at the site are resulting in the quantifiable reduction of risk. Success takes many forms, but without the commitment of the parties to partner, success will be difficult to achieve. Having worked with and interviewed local governments, Congress, community activists, economic development corporations, and federal and state agencies, ECA strongly believes that for environmental cleanups to be successful, members of the affected communities must partner with the entity undertaking the cleanup (including their contractors) and the state and federal regulatory agencies overseeing the process.

In order for parties to partner, each must have the same understanding of the "process" and the "rules." The process is the combination of all of the steps that the parties believe will need to be taken to complete the cleanup. The rules are the laws and policies that identify the minimum process that must be utilized by the parties to complete the cleanup (with a recognition that the rules can change).

The following recommendations and findings identify the key components that increase the likelihood of realizing the goal of cleaning a federal site in a manner that the site can remain or once again become an asset to a community and the country. That means not simply reducing the risks posed by hazardous and radioactive waste (and thus the federal government's liability), but taking affirmative steps to ensure that the final site condition after the completion of remediation activities supports the future use vision developed by all entities for the site.

Politics of Cleanup

These recommendations capture the many facets of the politics of cleanup. As discussed in the Foreword, cleanups are technical activities and political processes, and there is a range of permissible future uses and steps that the parties can follow to achieve the remediation goals and thus ensure a legally compliant cleanup. The process for identifying and resolving such issues — and the decisions themselves — constitutes the politics of cleanup. By identifying those interests and in developing appropriate solutions the cleanup process moves from a strictly technical project to a broad-reaching dialogue about what it means for a cleanup to be deemed a success.

These recommendations are intended to offer insights that can be adapted or modified by parties that are going through complex environmental cleanups to improve and more completely understand the decision-making process. ECA encourages the parties to tailor these recommendations to account for site-specific resources, issues and needs, and thus go beyond formulaic approaches to engagement and decision making.

Recommendations

The recommendations are grouped into four categories that broadly capture key steps in the cleanup process, a process that is, fundamentally, iterative.

I. Goals: Developing Goals and Identifying the Future Use of the Site.

II. Actions: Accomplishing Cleanup by Focusing on and Refining Goals Throughout the Cleanup Process.

III. Communications: Engaging the Community Through Consultation, Coordination, and Ongoing Dialogue.

IV. Conflict Resolution: Resolving Conflicts to Achieve Goals.

A note about the recommendations: This report is meant to address the lessons learned from partnering with communities to cleaning up DOE weapons facilities. Nevertheless, the following recommendations are broadly applicable to other environmental remediation projects, whether they are directed by the Department of Defense, the Environmental Protection Agency, or non-federal entities. For that reason, where possible we use the term “federal government” to refer to agencies charged with managing the cleanup project, as opposed to federal agencies charged with regulating the cleanup program.

I. Goals: Developing Goals and Identifying the Future Use of the Site

A critical ingredient underpinning success is the parties’ alignment on the cleanup goals and the future use visions of the sites. Equally important is the process the parties followed in developing the goals and future use vision of the site. Without such an alignment and a commitment to collaboratively address these issues, a timely cleanup likely would not be possible.

Recommendation #1: All Parties Must Collaborate — The federal government, local governments, community members, state and federal agencies, and Congress must collaborate when developing the cleanup goals and future use vision for the site.

The parties — often the federal government, local governments, community members, the state and federal regulatory agencies, and Congress — must jointly agree on the cleanup goals and future use for the site. Each site is different — at Oak Ridge, cleanup comes within the framework of an ongoing mission in some areas of the site and private economic development in others; at Mound, cleanup is geared toward transferring the site to a private party for economic development; and at Rocky Flats, cleanup is focused on retention of the site as a wildlife refuge by the federal government (DOE and the U.S. Fish and Wildlife Service). These visions created the framework from which expectations flowed (and cleanup work was completed), so it is vitally important for the parties to come together early in the process and agree on a conceptual vision.

To be effective . . . the cleanup and future use visions must move beyond the conceptual level, and specific cleanup goals also must be identified, defined and agreed to by the parties.

The Oak Ridge, Mound, and Rocky Flats cleanups present three different models for how to engage in defining the cleanup mission. The common thread is that after a comprehensive process — processes that are discussed in detail in "Chapter 3, Case Studies: Site-Specific Analysis" — the parties agreed on the future use vision for the site, although the specific processes employed and timeline for reaching agreement on the vision varied from site to site.

To be effective, however, the cleanup and future use visions must move beyond the conceptual level, and specific cleanup goals also must be identified, defined and agreed to by the parties. This way, cleanup enables the future use of the site. As best exemplified by Mound and Rocky Flats, the details are critical so it is important for the parties to jointly discuss and agree on what the general cleanup goals mean in specific terms. At Mound, because the federal government (in this case DOE), local governments and future owners of the facility disagreed on what an industrial cleanup meant in terms of specific remediation actions, the parties became polarized. In due time, Congress, at the request of the local governments and future site owner, intervened. At Rocky Flats, because the local governments and DOE's advisory board, among others, did not accept the initial soil cleanup levels, DOE (as the owner of the facility) and the two regulatory agencies (EPA as the federal regulator and Colorado Department of Public Health and Environment as the state regulator) adopted, the parties spent the next seven years after the cleanup agreement was signed discussing and negotiating revised cleanup standards. In both cases, the conceptual vision was largely shared, but the detailed cleanup levels, which in both cases necessitated long-term controls, were vigorously debated.

Repeatedly throughout the cleanup process at each site, this simple idea of working together and informing each party was forgotten or ignored, only to be learned again. This recommendation is critical to remember throughout the cleanup process.

Recommendation #2: Know the Rules — The law defines the cleanup process and the opportunity to participate in the process.

The law governs the cleanup process and defines the roles therein for the federal government and state regulators. The rules identify the cleanup process, the land transfer process and the minimum public participation process. All parties must know the law in order to understand their roles in the cleanup process. The primary laws defining cleanup at federal facilities are the Comprehensive Environmental Response, Compensation and Liability Act, as amended (CERCLA), and the Resource Conservation and Recovery Act, as amended (RCRA).

Rules take the form of laws passed by Congress and state legislatures and enacted by the president and governors, and the regulations and policies promulgated by federal and state agencies. Legislative bodies can amend these laws and agencies can revise their regulations and policies at any point. The rules also are open to interpretation by individuals on all sides of the issues and can many times define the direction of a program.

Guidance and policies help interpret the law, but the law sets the minimum ground rules, responsibilities and liabilities for cleanup. Communities should utilize experts and knowledgeable federal and state officials to teach them about the rules of the process.

Recommendation #3: Understand Federal Agencies' Goals — The parties must consider the federal government's mission and goals.

The federal government's overriding mission in cleaning up contaminated sites is to mitigate the risks and associated liabilities, and to reduce, if not eliminate, the long-term costs to the federal government. Within this mission, there are, however, certain constraints the federal government faces when remediating a site, including internal policies (orders), congressional mandates, regulatory requirements and funding restrictions. It remains imperative for Congress, federal and state officials, local governments, and others within the local community to understand these federal agency issues and the potential impacts on the cleanup.

The level of understanding and acceptance of these federal agency constraints varies widely. Some of the communities surrounding federal facilities accept such constraints but others do not. Local governments, as public bodies charged with developing and managing budgets and working within political constraints of their own, understand this environment. While understanding the goals, may parties challenge the federal government when they view the constraints as attempts to reduce the level of cleanup. In each of the case studies, the community and state regulators worked to change the federal agencies' restrictions (funding, policies, etc.) throughout the cleanup process.

Recommendation #4: A Cleanup Contract with Defined Goals Must Be Used — The closure contracts, which serve a number of roles, must identify clear milestones, be communicated to all parties, be understood by the parties and be funded annually by Congress.

Without doubt, the contract between a federal agency and its primary cleanup contractor is critical to accomplishing cleanup. Among other things, the contract establishes the legal

relationship among the contracting parties, defines the scope of work the contractor must accomplish to clean up the site, identifies the cost to clean up the site and creates incentives to accomplish the cleanup mission in a cost-effective and timely manner. Properly scoped contracts mirror the regulatory agreements that drive federal facility cleanup projects.

The closure contracts, which serve a number of roles, must identify clear milestones, be communicated to all parties, be understood by the parties and be funded annually by Congress.

While the primary value of such contracts flows between the contracting parties, these contracts also serve several other roles that are central to any successful cleanup project, including:

1. Establishing expectations among the parties;
2. Providing a cleanup vision for Congress to fund; and
3. Focusing the parties on the scope of work necessary to accomplish a cleanup that meets or exceeds regulatory requirements.

As discussed in each of the three case studies (see "Chapter 3, Case Studies: Site-Specific Analysis"), these contracts serve another, vitally important role: they provide a basis for community members and Congress to gauge cleanup progress which in turn helps increase trust and confidence in the cleanup. At Mound, for instance, contract compliance, not regulatory compliance, is a central means by which the community can measure whether the cleanup is making progress (both in terms of scope and timeline for completing the cleanup mission). In this capacity, though, such contracts must have clear milestones by which contract completion can be measured, must link contract compliance with regulatory compliance, must be communicated to and understood by all of the parties, and must be funded by Congress.

While the Oak Ridge and Rocky Flats contracts are equally valuable to Congress and community members surrounding those respective sites, the Rocky Flats cleanup contract also presents a prime example of where a contract limits or inhibits the community's dialogue with DOE and the regulatory agencies. When DOE and Kaiser-Hill (the prime contractor at Rocky Flats) signed a closure contract in 2000, DOE, the regulatory agencies, local governments and others within the local community were vigorously debating revised cleanup levels for the site. While all parties recognized the then-current regulatory cleanup levels would be revised, DOE and Kaiser-Hill nevertheless signed a contract that formalized cleanup levels that DOE and regulators planned to change. Many community members viewed DOE's decision to adopt, as a contractual matter, cleanup levels that the community universally opposed as an attempt to undermine the active dialogue regarding revised cleanup levels. DOE agreed to keep negotiating revisions to the cleanup levels, but with great pressure from Kaiser-Hill and tepid support from Congress and local governments, the department tightly bound the conversation. DOE demanded that any changes to the regulatory agreement could not cost more than the anticipated cost of contract completion as defined in the new closure contract. The net result was that the closure contract limited discussions regarding revisions to the regulatory agreement, a sharp contrast to the situation at Mound where the cleanup contract reflected the regulatory agreement.

Still, it was argued by some that had DOE and Kaiser-Hill not signed the 2000 closure contract and thus constrained the discussion, it is possible — even likely — that no conversation would have taken place at all. DOE was not in a position, and may never have been in a position, to entertain a completely unrestrained dialogue.

Recommendation #5: Understand Community Values — To properly collaborate, the parties must work to understand the values of the community, and must work to incorporate such values into the planning process.

In its 1999 report, *Beyond Closure: Stewardship at Rocky Flats*, the Rocky Flats Stewardship Dialogue Planning Group noted that federal agencies must understand cleanup issues "are not solely legal, technical or economic ones, but also speak to the ethics and values of the community." Similarly, in a 2005 report on the public involvement in long-term stewardship, the Center for Public Environmental Oversight, citing the Environmental Law Institute and the Energy Communities Alliance 2001 report on long-term stewardship, offered the following conclusion: "In relying on long-term stewardship controls, the issue is not simply one of developing engineered barriers and land use controls that are based on technical risk assessment but also of values, political negotiations, and trust. …"[19] Successful environmental cleanups are not limited to reducing risk and thus minimizing the federal government's liability; rather, success is also predicated on substantively incorporating the local community's values into the cleanup process, which in certain cases has led to additional cleanup beyond a strictly risk-based cleanup.

The sole way to ensure sites are cleaned and are an asset for the local community is to engage local parties on how the cleanup and, more particularly, the future use goals support or help advance local needs.

The future land use, as determined through a local government zoning process, significantly informs the cleanup level at private sites. At federal cleanup sites that are destined to be transferred out of federal ownership to a local government or private entity, local land use laws, including zoning authority, help establish the future use of the site. In addition, where the federal agency plans to retain ownership of the land, the zoning action by a local government also can be used to influence the cleanup decision-making process since the zoning identifies the community's proposed future use of the land. This future use formalizes the community's goals through a legal process that the federal agency will need to follow when making a cleanup decision at a site.

The sole way to ensure sites are cleaned and are an asset for the local community is to engage local parties on how the cleanup and, more particularly, the future use goals support or help advance local needs. For example, designating Mound as a wildlife refuge, as was done at Rocky Flats, would have been fundamentally inconsistent with the local needs; reindustrializing

[19] "Re-Evaluating Remedies: Strengthening Public Involvement in Long-Term Stewardship," Center for Public Environmental Oversight (2005).

Rocky Flats, as was done at Mound, would have likewise been inconsistent with core values held broadly by local governments and others in the affected community.

There are additional, more subtle steps the parties must take to successfully incorporate the local community's values into environmental cleanups. Examples of such key values that can prove central to a successful cleanup include:

1. Providing for economic development of the site and for economic self-sufficiency;
2. Addressing impacts resulting from the stigma of a former weapons facility;
3. Addressing potential risks and perceived risks of remediating contamination versus leaving it in place;
4. Incorporating long-term stewardship needs into the cleanup decision-making process; and
5. Ensuring the cleanup timeline does not unnecessarily impinge on economic reuse opportunities.

An example of items 1-3 is best highlighted by the dispute at Mound over remediation of a landfill (commonly referred to as "OU1").[20] The federal government's mission at Mound is to clean up the site and turn it over to the community for economic reuse. While economic redevelopment does not always align with DOE's mission of reducing risk, in the case of Mound, reuse of the site is tightly linked with DOE's cleanup mission. Nevertheless, the Miamisburg community and DOE became polarized over whether or not DOE needed to dig up a landfill and ship the waste to an off-site facility or cap the landfill thereby leaving the hazardous wastes in place. The dispute resolved around DOE's legally binding sales contract of the Mound site with the Miamisburg community – the community interpreted the contract to require the entire site to be cleaned up to an "industrial level," while DOE concluded cleaning up the landfill was risky, costly, and otherwise not necessary to support the future use of the Site. Without getting into the technical, legal and policy merits of each parties' position, there is an overriding issue that is central to what it means to successfully partner to clean up a federal facility: "Leaving OU1 in place," a state official noted, "complicates reuse efforts, and if reuse is not successful then the cleanup is not successful." Congress ultimately provided additional funding for DOE to excavate a portion of the landfill and ship its contents off-site. Work is expected to be completed in 2007.

Clearly not all values advanced by members of the local community align with the federal government's mission in remediating a facility — e.g., as was suggested by some anti-nuclear activists around Rocky Flats, the federal government should have diverted monies slated for building B-2 bombers to conducting additional remediation. However, many values do align and the process would be well served by the parties communicating and finding solutions to such issues.

[20] See Chapter 3 for a discussion of the dispute.

II. Accomplishing Cleanup: Focusing on and Refining Goals Throughout the Cleanup Process

As the Oak Ridge, Mound, and Rocky Flats cleanups highlight, the cleanup process is iterative. In environmental cleanups not all of the issues, challenges and opportunities are understood at the start of the cleanup process. The process necessitates a degree of flexibility, where communication must be dynamic. Successful cleanups, therefore, are able to integrate changes into the planning process.

Recommendation #6: Education Is Essential — The parties must take the time to educate each other on the technical and policy issues underlying the cleanup and to commit staff resources to engage each other. Discussions, which need to take place throughout the process, must also include the question of technical risk and perceptions of risk, recognizing perceptions of risks posed do not always align with the technical risk.

Education

In meeting with elected officials, community activists, economic development leaders and others at the three sites ECA investigated, ECA noted most were extremely conversant about site issues. They could often discuss in detail technical, policy, and/or economic transition issues. Such expertise does not arise overnight; instead, it is the result of significant effort on behalf of DOE, the regulatory agencies, and the prime contractor to dialogue with the aforementioned members of the neighboring community about the various issues that come together as part of the closure project.

DOE and the regulators need to exert whatever time and effort it takes to educate the affected entities about the various issues facing site cleanups.

There is no formula for how best to educate members of the community and local governments, but DOE and the regulators need to exert whatever time and effort it takes to educate the affected entities about the various issues facing site cleanups. While the parties need to develop mechanisms that address site-specific needs (see Recommendation #14), there are specific steps each of the parties can and should take, some of which are captured in Recommendation #11 (developing trust, accountability and openness):

- The parties should meet regularly to discuss technical and policy issues underlying the cleanup, even when there are no documents out for public comment.
- DOE should provide to the community and the community should review pre-decisional drafts of cleanup documents.
- Elected officials and other members of the local community should meet frequently with DOE managers and regulatory personnel.
- Local governments and other members of the community should have broad access to site personnel.

- The parties should jointly tour the site to help understand the issues from each other's perspectives.
- All parties should continually educate new parties as they become involved.

Each of these ideas, which have proven successful at the sites ECA investigated, serves to support the parties' ability to discuss and resolve complex technical and policy issues. In the case of Rocky Flats, providing pre-decisional documents to the local community improved the decision-making process without violating the Federal Administrative Procedures Act. DOE and the regulators estimate they were able to successfully resolve 75 percent of the issues prior to the start of the formal public comment period. This process, they conclude, served to both expedite and strengthen the decision-making process as community interests and values were integrated and addressed early in the regulatory process.

Risk Communication

Risk communication is an issue that is vitally important for the parties to understand, especially those parties charged with implementing and regulating the cleanup. In short, as shown at Mound and Rocky Flats, to the extent the federal government and the agencies regulating complex environmental cleanups believe risk is limited to technical risk, the parties will likely be unsuccessful in partnering with local governments and others within the local community. Local governments and other members of the local community must be educated about the hazards and associated risks, and all technical decisions must be technically sound. Decisions, however, even technical ones, are not solely technically-based. For that reason, the federal government and the regulatory agencies must also be educated about the various perceptions among local governments and others within the neighboring community regarding risk (which generally vary from community to community and even within communities), for such perceptions may not square with actual technical risks. As noted in "Appendix C" one's acceptance of risk most often breaks between tolerated risks[21] and non-tolerated risks,[22] and does not necessarily track quantifiable, scientific risk. Accordingly, one of the critical lessons learned from the success and challenges at the sites ECA investigated was the importance of developing and implementing a risk communication process. ECA therefore strongly recommends the parties tackle the question of risk communication, for through such a dialogue lies the greatest chance for reconciling differing perspectives on the question of risk and reaching agreement on difficult cleanup issues.

The National Research Council, an arm of the National Academies, commented on this issue in a 2005 report: "Risk assessment sometimes is prescribed as a universal solution for problems faced by decision makers. Such thinking is counterproductive. Risk assessment is a tool that can help decision makers reach a solution but it is difficult to use well and does not guarantee a satisfactory outcome."[23]

[21] E.g., voluntarily assumed, personal benefits, naturally occurring, scientists agree.
[22] E.g., imposed by others, no perceived personal benefits, man-made, scientists disagree.
[23] "Risk and Decisions: About Disposition of Transuranic and High-Level Radioactive Waste," National Research Council (2005), 91.

Recommendation #7: Congress Must Make Cleanup a Legislative Priority — Federal lawmakers should understand the needs of the parties involved and become intimately involved in cleanup decisions.

Congress plays a critical role, and the active and consistent involvement of Congress in the cleanup programs has proven central to DOE's successes in cleaning up its facilities. Congress, among other roles, helps moderate discussions and improves the flow and effectiveness of the decision-making process. Toward this end, because the parties cannot effectively partner and negotiate without intimately understanding congressional politics, an effective partnership necessitates the active engagement of congressional staff in both Washington, D.C. and at the local level by all of the parties engaged in cleanup decision making. Through this active engagement, the parties are often better able to remain aligned on the cleanup goals and mission, and Congress is better poised to support necessary congressional action (e.g., appropriations or changes in law to help facilitate the cleanup mission).

. . . active and consistent involvement of Congress in the cleanup programs has proven central to DOE's successes in cleaning up its facilities.

Local staff engagement often requires significant resources and in many cases alters the traditional role of district/state staff. Yet the benefits are numerous. DOE-Rocky Flats officials understood well the importance of working locally with congressional staff. DOE would routinely brief district congressional staff and not rely on annual briefings to legislative staff in Washington, D.C. DOE understood the value of engaging local congressional staff, of having partners in close proximity to the site be closely aligned with the closure project. One of the benefits of this close working relationship was that the parties, even when they disagreed, worked hard to ensure they did not catch the other off guard when taking a stance that might be contrary to the others' position – and with this approach, trust developed that proved central to maintaining congressional support for the cleanup project.

Similarly, the contractors, state regulators, federal regulators, local governments, community members and others all learned the importance of regularly briefing congressional staff and members. The briefings occurred at all levels of a congressional office and included the staff and members of the congressional committees and subcommittees that impact the budget and policies of the federal agency conducting and overseeing the cleanup.

Like so many of these recommendations, this recommendation is broadly applicable to each of the four categories, not simply accomplishing cleanup. Congressional involvement is critical for all phases of the cleanup project (and ECA believes will prove critical to the effective post-closure management of former weapons facilities as well).

Recommendation #8: Local Presence Facilitates Cleanup — The federal entity charged with cleaning up the site and the federal and state regulatory agencies must have a local presence and must address problems resulting from staff turnover that negatively affect cleanup and public involvement efforts.

This is one of the most important recommendations that ECA has to offer in this report. Frequent contact between DOE, federal and state regulators, congressional staff, local governments, economic development entities, federal advisory boards, and others is essential. Proximity of decision makers to the site and the neighboring community is vital to ensuring a healthy dialogue.

A strong regulator proved to be essential to the numerous successes at Oak Ridge, Mound and Rocky Flats, but that role can easily be compromised if the regulators are not part of the community in which the site is located. At both Oak Ridge and Rocky Flats, DOE, EPA, and the state regulator had a local presence. DOE's site at Portsmouth, Ohio, which was not evaluated as part of this study but which is nevertheless instructive, presents an important contrast — the DOE Field Office is in another state (Kentucky) and the state regulator is located in a different region of the state. Both DOE and the state have a local presence but upper management (the actual decision makers on policy and budget) lives and works elsewhere, which compounds challenges as the agencies attempt to partner and to work with local governments and other community leaders.

As discussed in the Mound case study (See "Chapter 3, Case Studies: Site-Specific Analysis"), DOE's decision to move the Ohio Field Office from Miamisburg 40 miles south to Cincinnati stressed an already strained relationship. When DOE and regulator personnel lived near the Mound site, they could better place site decisions within the context of how such decisions affected the community; conversely, the greater the distance the key decision maker lives from the affected community, the more likely he or she will perceive concerns of that community to be merely theoretical. DOE's decision to move key decision makers so far from the site eroded a strained dialogue, leaving the city to believe that there was no one working for the Ohio Field Office with whom they could partner.[24]

Clearly the decision of where to site upper management hinges on a number of factors. The way to resolve this conundrum where key decision makers are not located near the federal facility is to authorize local staff to make decisions on behalf of the agency. That way, local governments and other community members will trust that they will be working with those making the decisions.

Another issue the parties need to address is the difficulties that arise from turnover in the agencies and in local government. Addressing this issue is central to minimizing disruption in the decision-making process and in partnerships between the parties. This issue is difficult to solve but one option is to codify deals so that they, in essence, bind future decision makers.

[24] According to DOE, headquarters management moved staff from Mound to a more central location in order to facilitate a faster cleanup at Mound and to better serve other cleanup sites.

Recommendation #9: Federal Agency Leadership Sets the Tone — The federal entity charged with cleaning up a site must establish management policies that challenge the staff to complete the job, and broadly communicate agency policies to affected constituencies and to Congress.

This recommendation is linked closely to the preceding recommendation. Leadership at the highest levels within the federal agency charged with cleaning up the federal facility drives the cleanup program. These leaders — often political appointees — establish agency policies and priorities that, with Congress's support, establish the framework from which cleanup decisions are made and expectations flow. In order to improve the cleanup program and to facilitate positive change, leadership is essential, and DOE's successes stem from effective leadership throughout the life of the cleanup program. Leadership, however, is not limited to effectively managing a large federal bureaucracy, although such leadership has been core to DOE's success. Leadership likewise means listening to those most affected by agency decisions (local governments and other community members) and promoting the programs to Congress. After all, our research has shown that congressional and community support for the cleanup program has been vital to DOE's success.

For community members to effectively engage the federal government, they must spend time in Washington, D.C. meeting with agency heads to both understand agency priorities and to communicate the priorities of the local community. Elected officials from both the Mound and Rocky Flats communities understood the importance of regularly visiting Washington, D.C. ECA believes their successes in representing their communities throughout the cleanup process are directly proportional to the time these community leaders spent meeting with DOE, EPA, and congressional leaders in Washington, D.C.

Recommendation #10: All Parties Must Take Into Account Post-Cleanup Requirements – Cleanup completion typically means that contamination will be left in place; thus, identifying sources of long-term funding and clarifying the roles of the affected parties are essential.

Federal sites are rarely remediated to natural background levels; consequently, contamination is usually left in place when cleanup is "complete." Hence, the process of cleanup must recognize that ongoing management (often called long-term stewardship) of the remaining contamination will be required. Depending on the site, management activities could include continued water and air monitoring, maintenance of physical controls such as fences and signs, maintenance of legal controls such as easements, leases and covenants, and access restrictions, to name a few. These management activities require ongoing funding, sometimes reaching into millions of dollars per year, but the entity charged with securing such funding varies. ECA wrote a detailed report on this issue titled "The Role of Local Government in Long-term Stewardship" that includes detailed recommendations.

At the three sites ECA investigated, different parties are charged with managing the site and thus securing the requisite funding. At Oak Ridge, DOE will retain a portion and non-federal entities will acquire the remainder of the site. At Mound, when the active cleanup ends, the long-term stewardship will be a local development corporation. At Rocky Flats, cleanup

does not end the federal mission or federal ownership of the site, but jurisdiction will be transferred from DOE's Office of Environmental Management to DOE's Office of Legacy Management and to the Department of the Interior.

In order for these cleanup projects to be ongoing assets for the affected community, the stewards must be identified and agreed to by all of the parties and have the funds necessary to implement long-term stewardship activities. Ideally, as cleanup actions are being designed, long-term funding management requirements and funding needs will be identified as well. Achieving this goal, however, has proven difficult.

III. Communications: Engaging the Community Through Consultation, Coordination, and Ongoing Dialogue

Community engagement is critical at all steps in the process — at the development of the vision, at refinement of the cleanup goals and priorities, and at all times where conflicts arise. One of the overriding principles is not divorcing process from substance, and yet, at times, a tension exists between substantive public involvement and doing what local governments and other community members want at the site. For the federal government the question of community involvement concerns whether more members of the public accepts and supports the process; for local governments and other community members the question is whether they obtain what they want at the site. And for both the question is prioritization — as not all issues are equally weighted.

Recommendation #11: The Parties Must Build a Working Relationship — All parties must take the necessary steps to develop and maintain trust, accountability and openness.

Historically, DOE, and its predecessor agency, the Atomic Energy Commission, operated under an umbrella of secrecy, which set the decision-making framework of decide, announce, and defend — make a decision, announce the decision and then defend the action. Partnership requires a fundamentally different paradigm as partnership is based on trust, accountability and openness. DOE largely has moved away from this historic posture, but in cases where the decision-making process is not open, the community's trust in DOE will be compromised.

. . . without an agreement on the goals for the program and a vision of where to go, trust and accountability are difficult to achieve.

Trust and Accountability

Trust and accountability flow from the program mission and vision — without an agreement on the goals for the program and a vision of where to go, trust and accountability are difficult to achieve. At the sites ECA investigated, there are various ways that the parties have built trust and shown through their words and actions to be accountable. Parties at other

facilities need to work together to understand the site-specific needs and develop the mechanisms to meet those goals. The ideas discussed under "Openness" below provide a starting point.

Without doubt, the parties must be forthright, honest and fair. While federal officials must carry out the federal government's mission, agency personnel must also advocate within the agency and with the regulators and Congress what is needed locally. At times that responsibility necessitates advocating for the interests of the local governments and others within the affected community, and challenging the bureaucracy as necessary. The federal government and the regulatory agencies must likewise communicate their issues and concerns, even if their positions run counter to local interests.

Specific steps DOE has taken at the three sites ECA investigated to build trust and accountability include:

- Offering site tours;
- Holding briefings on all elements of the cleanup program especially when such briefings are the request of local governments and other members of the community; and
- Sharing with local governments and other members of the community matrices that can help them track compliance with the regulatory agreement and contract.

Even by taking these and other steps trust could fail, for as one DOE official in Ohio stated, "DOE must keep its commitment at all costs but trust still might fail — and remember that without keeping commitments all trust will be lost."[25]

Community members must likewise meet the same standard of trustworthiness and accountability that they demand of the federal and state governments. Where the community did not meet its commitments to DOE, the actions compromised the ability of community members to partner with DOE. Such inconsistency is not lost on DOE and thus diminishes the value and effectiveness of those community members.

Openness

Openness is not synonymous with meeting the minimum requirements as provided under CERCLA and RCRA. Through our discussions with local leaders and based on our own experiences, openness can be summarized by the following ideas:

1. Abide by the principle of "no surprises;"[26]
2. Be honest (or as one former-DOE official stated, "openness even when it hurts");

[25] As noted in the site-specific analysis of Oak Ridge in Chapter 3, a classic example of where DOE did not keep its commitment which led to a breakdown in trust was at Oak Ridge, where DOE's unilateral decision to designate the Salway Bend as part of the Three Bend Scenic and Wildlife Management Area ran afoul of its prior agreement with the City to turn over certain lands under the self-sufficiency agreement.

[26] "No surprises" was defined by members of the three communities as a commitment by all parties involved to not catch one another off guard. This approach was carried out with steps such as sharing of draft correspondence and alerting each other to conversations with the media, Congress and DOE Headquarters.

3. Provide regular information and brief the local governments and other members of the local community;[27]
4. Identify for all parties any real or potential impediments to success;
5. Be available, which could mean talking with or meeting with local governments and other members of the local community on a daily or weekly basis;
6. Share bad news when you get it;
7. Work off-line as not all discussions should take place in public (this idea is discussed in greater detail in Recommendation #14);
8. Respect the parties enough to say when you do not agree; and
9. Keep searching for ways to increase dialogue and openness.

One DOE site manager summed up the issue of openness this way: "The regulatory minimum is not enough … we need to communicate, discuss, and agree on all the issues." He further explained that through a collaborative process, the cleanup process moves forward more quickly.

"The regulatory minimum is not enough . . ."

Individuals and Relationships

Successful partnerships hinge not only on honesty, accountability and openness but also on personal relationships. This intangible factor is difficult to quantify and qualify, but experience shows individual relationships directly affect success.

At Rocky Flats, interviewees remarked that an essential factor to their success was the willingness of individuals within DOE, regulatory agencies, congressional and gubernatorial offices, the state attorney general's office, local governments, and community groups to work together and trust one another. At Oak Ridge, the personal relationship between the mayor and DOE site manager proved similarly vital in the parties' ability to bring together local interests and DOE priorities.

At Rocky Flats, disputes also were borne out of a lack of trust that was equal parts individual distrust and institutional distrust. Similar dynamics were observed at Mound. The inability of the parties to resolve the dispute over the OU1 landfill without congressional intervention hinged as much on individual relationships among local governments, state officials and DOE personnel as it did on differing priorities, interests and goals between these parties.

Recommendation #12: Be Organized — Local governments and the community must be organized and proactive, and strive to speak with one voice.

When remediating federal facilities, federal environmental laws clearly vest cleanup authority in the federal government with regulatory oversight by the Environmental Protection

[27] At Rocky Flats one of the more politically sensitive remediation projects was digging up contaminated soils at the 903 Pad, a former waste drum storage area. As a result of community concerns, the EPA required DOE to conduct a more thorough remediation analysis than DOE had planned. Moreover, during the remediation project, the site contractor provided the community with daily email updates on the status of the remediation – which cells had been remediated, how much soil had been removed, the activity level, and any other relevant information.

Agency (CERCLA) and in the state (RCRA). Across the DOE complex, DOE (as the federal agency charged with cleaning up the sites) and the regulatory agencies have utilized widely different methods for engaging the local governments and other members of the community neighboring the site.

In general, DOE has invested considerable time, effort and money over the past decade building and supporting EM Site-Specific Advisory Boards (EM SSABs) and the investment has paid off through the organized, continuous involvement of a broad range of members from the local community. Throughout the DOE complex, EM SSABs, like their counterparts at DOD facilities, have been to varying degrees integral to the successful partnerships between the federal and state agencies and the community. The EM SSABs have been involved in questions concerning the future use of federal facilities, cleanup levels and long-term protection systems necessary to manage residual contamination following the completion of cleanup activities. However, while these groups have served an important role in organizing community involvement, there have been instances where local governments did not believe that the EM SSABs[28] served their interests.

Where local governments have been most successful is when they have taken the initiative to organize and proactively engage DOE and the regulatory agencies. Through such local government organizations at Mound and Rocky Flats, which were tailored to meet local or regional needs, the local governments created a forum for jointly identifying their interests and developing strategies for accomplishing mutual goals. They created the means by which they could then engage the other parties — and to the degree they can speak with one voice, their power and effectiveness are amplified.

By working with a single entity, such as a coalition of governments, the federal government, regulators and Congress gain an educated and informed partner whose collective position indicates what is in the public interest of local residents.

By working with a single entity, such as a coalition of governments, the federal government, regulators and Congress gain an educated and informed partner whose collective position indicates what is in the public interest of local residents. Goals then are more clear because the local governments have proactively worked out their differences and minority views are in turn more easily identified and marginalized. By taking steps to support such organizations, the federal government helps build credibility with local governments and with

[28] "In accordance with its charter, the EM SSAB exists to provide the Assistant Secretary for Environmental Management, the appropriate Site Manager(s), and any other DOE officials the Assistant Secretary shall designate, with information, advice and recommendations concerning issues affecting the EM Program at various sites. Specifically, at the request of the Assistant Secretary or the Site Managers, the Board may provide advice and recommendations concerning the following EM site-specific issues: clean-up standards and environmental restoration; waste management and disposition; stabilization and disposition of non-stockpile nuclear materials; excess facilities; future land use and long term stewardship; risk assessment and management; and clean-up science and technology activities. The Board may also be asked to provide advice and recommendations on any other EM projects or issues." Source: U.S. Department of Energy Environmental Management Site-Specific Advisory Board Interim Guidance, Office of Public and Intergovernmental Accountability (June 2006).

Congress that can help serve to provide political cover, especially against minority factions from within the local community.

Nevertheless, even in circumstances where local governments have organized, challenges and frustrations remain. One of the consistent, although far from universal, concerns regarding public involvement ECA heard when meeting with local governments was that DOE, EPA, and the state regulator approached working with them in the same manner that the agencies work with any other interest group. Yet, local governments, like their state and federal counterparts, are charged with protecting the health, safety and welfare of their communities. Many local government officials believe they should be treated as equals with the state and federal governments, and should be able to work with the federal government on a government-to-government basis. Local governments instead have historically played a secondary role in federal environmental cleanups.

Organization Must Be Supported by Professional Staff

A coalition of impacted jurisdictions gives weight, but that group must be supported by staff or consultants with technical expertise. To be effective these staff/consultants must develop an in-depth understanding of national policies and politics that affect the cleanup program, and must focus on the issues and become experts. The process of engaging on a cleanup issue is difficult and demanding work so the governments and communities need the capacity and infrastructure to handle vast amounts of work as the demands can be too much for a municipal government alone.

Recommendation #13: Resources Ensure Parties Can Participate — The federal government and Congress must provide regulators and communities with the financial resources necessary to organize and retain the staffing resources they need.

Without federal funding, local governments and community organizations will struggle to secure the funds necessary for them to be able to actively engage on site issues — and without the means to partner effectively, the successful transition of the site to a continuing asset for the local community is compromised.

Had these governments not had the monies to engage in the manner and extent they did…it is likely Rocky Flats would have closed late and at an additional cost of hundreds of millions of dollars to the federal government.

Federal facility cleanups in the 1980s and 1990s were based on litigation and little was accomplished. Where cleanup did occur, the federal agency would submit the cleanup paperwork to the regulators who then would take months to review and approve that the cleanup was complete. Eventually, the EPA brought together the federal agencies and state regulators for meetings, which ultimately led to the creation of agreements that permitted federal funding for state regulators. This approach ensured that states had the staff to work with the federal agency on cleanup issues. For example, at Mound, Oak Ridge and Rocky Flats, DOE funding provides for state regulators to participate

and facilitate the cleanup process. (The same is true at other DOE cleanup sites.) Similarly, DOE funding allows EM SSABs, tribes, national intergovernmental groups and some local government groups to participate in cleanup decision making, helping to build trust among all the stakeholders. Significantly, none of the interviewees believe that the funding compromises their independence from DOE.

Rocky Flats provides a prime example. From 1999 to 2005, DOE, through congressional appropriations, provided the Rocky Flats Coalition of Local Governments approximately $2 million to support their efforts. These dollars, which roughly equal one day's expenditures at the site, were critical in providing the coalition with the resources to engage on the range of cleanup issues and thus help support an accelerated cleanup.

A public involvement process for the sake of process will yield little positive results and will not serve to support a timely cleanup.

Specifically, the coalition helped accelerate the cleanup by:

1. Working proactively to identify the future use of the site, which was central to finalizing cleanup levels;
2. Becoming the key partner in revising the regulatory agreement to better address local government interests and concerns;
3. Reaching out to Congress and thus providing additional political support for the cleanup;
4. Helping keep Rocky Flats politically relevant; and
5. Increasing public confidence in the cleanup by, among other means, working with the press and communicating directly with affected constituents.

These monies, a fraction of the cost of remediating a site, reaped huge benefits for the parties involved. Had these governments not had the monies to engage in the manner and extent they did, but were otherwise sufficiently organized to hinder the process, it is likely Rocky Flats would have closed late and at an additional cost of hundreds of millions of dollars to the federal government.

Mound provides another example of where federal dollars invested in community engagement helped accelerate the cleanup. DOE and Congress provided the local community improvement board and future owner of the site (Miamisburg Mound Community Investment Corp.) with the resources necessary to develop and implement a site-wide site transition plan. In doing so, DOE identified a means to clean up the site and a local group to redevelop it. Without these funds, the cleanup would have taken longer to complete and portions of the site would not have been transferred out of federal ownership, thereby increasing DOE's short-term and long-term costs and complicating the federal mission.

Recommendation #14: Following the Minimum in the Law Is Not Enough — Minimum regulatory requirements are insufficient to support substantive public involvement; the parties must develop public involvement processes that are tailored to site-specific needs, recognizing that process is different from negotiations.

Frequently, the single most difficult challenge the parties face in engaging the local governments and other community members is in identifying the purpose of any public involvement process. A public involvement process for the sake of process will yield little positive results and will not serve to support a timely cleanup. Because federal environmental laws include specific provisions regarding community involvement, the agencies charged with managing and regulating the cleanup often strictly (and narrowly) follow public involvement processes as laid out in applicable regulations.

". . . engaging these community members improves the decision-making framework."

However, strictly following regulatory minimums ensures openness but may not support a productive partnership. A process that all entities can agree on needs to evolve and ensure trust and communication are built at a site. For that reason, the parties charged with cleaning up a site and those charged with regulating their cleanup activities need to be clear on the point of public involvement processes. For the federal government and the state regulators, the greatest challenge is not whether regulations and policies allow the parties to partner with local governments and other members of the local community, for they do. Rather, engagement fundamentally involves whether the federal government and the state regulators view working with local governments and other community members as a burden performed only to meet minimum regulatory requirements for community involvement, or whether they believe, as ECA does, engaging these community members improves the decision-making framework. If the answer is not the latter, then conflicts increasingly are likely to arise and more likely difficult to resolve.

Process

When discussing "the community," our research found that generally speaking, there are three categories of people — passionate community members, elected officials, passively-interested community members — and each group requires differing public involvement processes. In developing the appropriate process, there are a few guiding principles, some of which have been discussed or referenced elsewhere in these recommendations:

1. Utilize informal contacts as they are as important as the formal;
2. Work together and be willing to compromise;
3. Do not underestimate the time it takes to resolve both the technical and political elements of cleanup issues;
4. Understand each party's purpose behind the process—what one is trying to accomplish—and make certain there are not competing processes; and

5. Develop site-specific public involvement mechanisms. Examples used at any of the three sites include:
   a) Create topic-specific focus groups (e.g., determining cleanup levels or where water monitoring wells should be placed);
   b) Establish regular public meetings between the site manager and the public where any topic is fair game;
   c) Develop joint DOE, regulator, local government and community member working groups; and
   d) Share information, including documents, as it is produced in advance of formal public comment periods (this model was effectively used at Rocky Flats).

Negotiations

Process and negotiation are not synonymous, and underlying any workable relationship is the ability to negotiate. As clearly shown at the three sites ECA investigated, the parties must negotiate and formalize deals that can survive changes in personnel. This goal is extremely difficult to achieve. And it must be understood that community engagement at its very best is imperfect and can leave pockets of discontent.

Even with the best process there will always be pockets of resistance. For that reason, the parties must learn discretion and be mindful that not all conversations should be in a public forum. Public forums are important for conveying information and creating dialogue, but they also foster posturing on all sides, which stymies the ability to reach agreements.

The downside of this recommendation is best exemplified at Rocky Flats where DOE's own advisory board resented the role the local government organization was able to carve out for itself. Public process is, among other things, designed to engage people and do so in a manner so that they believe they are involved. However, a strong local government organization that takes steps to ensure its objectives are met can foster tension if local governments and others within the local community believe the organization is not adequately involving them or representing their views. At Rocky Flats, DOE, the regulators and the congressional delegation accepted that tension due to the fact that the local governments (1) represented constituencies, and (2) were willing and capable of negotiating difficult issues.

In communities such as those surrounding Rocky Flats where there was organized dissension, the federal government took care of partners and communicated with Congress and the governor's office about the approach it was taking. In doing so, the federal government exemplified that it understood the difference in what it means to work with a community and what it means to develop lasting partnerships.

IV. Conflict Resolution: Resolving Conflicts to Achieve Goals

Partnering on environmental cleanups can be messy and conflicts can arise at any point and for many reasons: when the decision to close a site is made, when establishing cleanup levels, or when determining the future use of the site. Often in complex environmental cleanups, the full extent of the contamination is not known at the start of the project, so decisions need to

be refined throughout the process, which raises the need for the parties to develop mechanisms to resolve conflicts.

Recommendation #15: Engage Each Other Regularly — The parties must substantively engage each other throughout the entire cleanup and reuse planning process.

The best way to resolve conflicts is to build a dialogue and be committed to a process that can include the other recommendations outlined in this document; in other words, be proactive. The ability to resolve conflicts flows directly from engaging in a dialogue at the start of the process when goals are being defined and cleanup strategies are being developed.

Since cleanup began in earnest at the three sites ECA examined, the common denominator underlying why conflict arose was that local governments and other members of the community were not engaged in the process and/or these parties and the decision makers (DOE and the regulatory agencies) could not come to agreement on levels of risk. Examples of some of the conflicts that arose at each site are set forth below:

1. At Mound the issue was the definition of "industrial cleanup" — the risk to future users and potential impacts on the ability to use the whole site for industrial reuse;
2. At Rocky Flats the issue was the cleanup levels – local governments, DOE's community advisory board, and community activists universally believed the initial levels presented too great of a risk; and
3. At Oak Ridge, the issue was the classified burial ground — the city of Oak Ridge was concerned how the potential impacts of a cleanup decision could affect efforts to reindustrialize the site.

Such conflicts, which in the case of Mound and Rocky Flats necessitated congressional involvement, can and should be proactively addressed.

Chapter 3
Case Studies: Site-Specific Analysis

CASE STUDY: OAK RIDGE

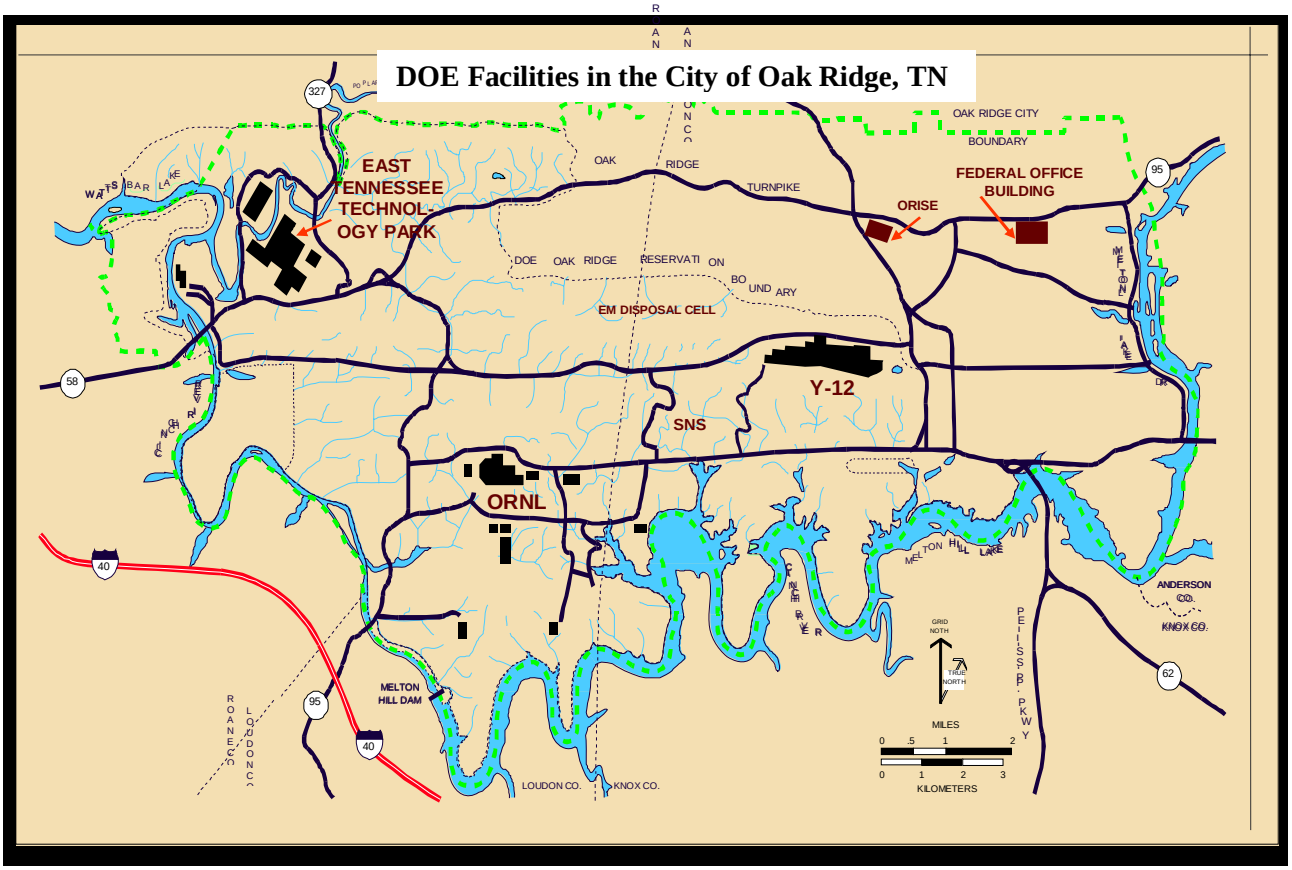
The Oak Ridge Reservation (ORR) presents an important contrast to the Mound Site and the Rocky Flats Environmental Technology Site as it is the sole DOE facility ECA investigated that has an ongoing mission. ORR's mission is linked closely to the fabric of the surrounding community where the cleanup activities being conducted by EM must be viewed in the context of a site whose main focus is the ongoing mission.

The community, DOE, and the state and federal regulators are closely aligned on ORR's mission: cleaning up K-25, Melton Valley and other sites to allow for reindustrialization; attracting new business to the federal site and to the community; and supporting the ongoing mission at Oak Ridge National Laboratory (ORNL) and Y-12. Together, these activities are geared toward providing for the long-term economic health of the region, a common vision that underpins ECA's analysis of EM's work with the community.

DOE, the regulators, community members and local governments have developed mechanisms for community involvement that are tailored to the site- and community-specific needs. There are, naturally, disagreements about elements of the cleanup and DOE's financial obligations to the community, but these unresolved disagreements do not undermine broad support for the cleanup project or the ongoing mission.

Background — History of Oak Ridge and Key Issues

During the height of World War II and as part of the Manhattan Project, nearly 1,000 farmers were forced off of their lands so that the federal government could begin constructing the Oak Ridge Gaseous Diffusion Plant. Almost overnight, tens of thousands of workers constructed three industrial facilities unlike any previously built in the world: K-25, now called the East Tennessee Technology Park (ETTP), focused on enriching uranium; X-10, now ORNL, housed the world's first full-scale nuclear reactor; and Y-12, now known as the Y-12 National Security Complex, also focused on enriching uranium.



A secret and closed city, later named Oak Ridge, housed the workforce necessary to run this enormous nuclear weapons manufacturing plant. Throughout the next 50 years, the nearly 35,000-acre ORR supported the development of atomic bombs and other military and civilian projects, including environmental research and restoration.

Estimates regarding the extent of reservation contamination vary from 10 to 15 percent of the land. Environmental conditions at ORR included:[29]

- Groundwater contamination both on- and off-site;
- Acres of radioactive wasted and uranium in underground burial sites;

[29] "The Role of Local Governments in Long-Term Stewardship at DOE Facilities," Environmental Law Institute and Energy Communities Alliance, 2001.

- Radioactive wastes discharged into surface streams;
- Contaminated rivers and streams; and
- Waste stored in the largest disposal cell in the DOE complex.

Oak Ridge is a small, company-oriented town, and there is a great deal of overlap among community members, elected officials and site personnel. In fact, most of the community members and elected officials ECA interviewed had worked or continue to work at ORR.

The Atomic Energy Communities Act (passed in 1955 and amended thereafter) facilitated the establishment of local self-government at Oak Ridge and the two other Manhattan Project communities — Richland, Washington, and Los Alamos, New Mexico. The act authorized DOE to convey federally owned property in those communities and to make self-sufficiency payments to the communities to support their growth. Between 1955 and 1985, when DOE and Oak Ridge signed their last self-sufficiency contract, 22 parcels totaling about 10,405 acres were set aside for DOE to consider for transfer to the city, should the land became excess to DOE's mission. So far, only about 20 percent of the land has been transferred.

Timeline

1942 Construction of the Oak Ridge complex begins.

1943 On February 2, ground is broken for Clinton Laboratories, renamed the Oak Ridge National Laboratory after World War II. The Clinton Pile, the first plutonium production reactor, begins operation.

1943 On November 4, the graphite reactor goes "critical" with a self-sustaining fission reaction which was the world's second reactor to achieve one. Over the next year, the reactor performs flawlessly, irradiating thousands of fuel slugs, which were disassembled and dissolved so the plutonium could be extracted. The graphite reactor and its chemical-separation labs served as pilot-scale models for production plants at the Hanford Site in Washington state.

East Tennessee Technology Park (former K-25 facility)

1944 With Hanford beginning to churn out plutonium by the end of the year, the Oak Ridge graphite reactor's most urgent mission had been completed and its focus shifted to radioisotope production.

Politics of Cleanup

1945 In March, K-25 at Oak Ridge and other gaseous diffusion plants are in operation to separate uranium 235. This facility was a forerunner to similar facilities built for the enrichment of uranium.

1946 In August, the Oak Ridge facility ships the first nuclear reactor-produced isotopes for civilian use.

1954 Oak Ridge opens as a city. The city is incorporated five years later.

1985 Uranium enrichment operations at K-25 Gaseous Diffusion Plant are halted; the plant is permanently shut down in 1987.

1985-86 DOE and city of Oak Ridge sign a contract governing assistance payments and payments in lieu of taxes; self-sufficiency land map is developed.

1989 The Oak Ridge Reservation (ORR) is placed on the National Priority List.

1991 The Toxic Substance Control Act (TSCA) incinerator begins operation at K-25. It is the only incinerator in the nation capable of incinerating wastes containing polychlorinated biphenyls (PCBs).

1992 The ORR Federal Facility Agreement, a cooperative agreement among DOE, the U.S. Environmental Protection Agency, and the Tennessee Department of Environment and Conservation (TDEC), is enacted.

1993 A citizens working group is formed to provide feedback on remediation alternatives for the cleanup of mercury contamination in the Lower East Fork Poplar Creek, which would become one of the first major cleanup efforts in Oak Ridge. Public input into the remediation was the catalyst for modifying cleanup levels, resulting in lower costs and less environmental disruption from excavation.

1995 The Oak Ridge Site Specific Advisory Board (ORSSAB) is established under the EM SSAB charter. This group is charged with providing advice and recommendations to DOE's Office of Environmental Management.

1995 Records of decision are issued for remediation of Lower East Fork Poplar Creek and Lower Watts Bar Reservoir.

1996 The Community Reuse Organization for East Tennessee (CROET), the DOE-established and -funded community reuse organization for ORR, signs its first lease of a K-25 facility.

1997 The End Use Working Group forms. This diverse group of stakeholders is charged with developing recommendations on the remediation of ORR.

1997 ORSSAB sponsors public meeting that results in the formation of the End Use Working Group, a diverse group of stakeholders charged with developing recommendations for future uses of contaminated sites.

1997 Lower East Fork Poplar Creek remediation complete.

1997 Records of decision are issued for removal of sludge from gunite tanks at Oak Ridge National Laboratory (ORNL), remediation of surface impoundments at ORNL, remediation of Clinch River/Poplar Creek and remediation of Union Valley groundwater plumes.

1998 Bechtel Jacobs Co. LLC replaces Lockheed Martin Energy Systems Inc. as the prime environmental management contractor at ORR.

1998 The End Use Working Group (EUWG) issues two reports: *Final Report of the Oak Ridge Reservation End Use Working Group* and *The Oak Ridge Reservation Stakeholder Report on Stewardship.*

1999 The ORSSAB forms the Stewardship Working Group. The group, which is charged with evaluating stewardship at ORR, produces a followup report to the End Use Working Group's 1998 report: *The Oak Ridge Reservation Stakeholder Report on Stewardship, Volume 2*.

Y-12 Racetrack, Oak Ridge

2000 Removal of radioactive sludge from a series of underground gunite tanks at ORNL is completed.

2000 Records of decision are issued for the Melton Valley Watershed and Bear Creek Valley Watershed.

2000-2001 UT Battelle (a partnership between the University of Tennessee and Battelle) and BWX Technologies (BWXT) replace Lockheed Martin Energy Systems Inc. as the primary contractors for ORNL and the Y-12 facilities, respectively. National Nuclear Security Administration (NNSA)[30] is created.

2001 Ground is broken for the Environmental Management Waste Management Facility (EMWMF), an on-site CERCLA landfill for contaminated waste

[30] NNSA, which was established by Congress in 2000, is a semi-autonomous agency within DOE that is responsible for enhancing national security through the military application of nuclear energy.

generated from ORR cleanup. The landfill begins accepting waste in 2002. A trust agreement is entered into where DOE will pay the state $1 million a year for 14 years to be placed in a state-managed fund for maintenance of the landfill.

2002 DOE announces that ORR will be cleaned up on accelerated schedule, with high-risk areas to be addressed first. Areas covered in the Melton Valley Record of Decision are scheduled to be remediated by 2006, East Tennessee Technology Park by 2008, and the balance of reservation by 2015. EPA, TDEC, and Bechtel Jacobs support new timeline. Bechtel Jacobs signs new accelerated cleanup contract in 2003.

2002 The DOE Information Center opens, consolidating the services of the DOE EM Information Resource Center and the DOE Public Reading Room.

2003 DOE's Office of the Inspector General issues a report criticizing reindustrialization efforts at the East Tennessee Technology Park (ETTP). Report concludes that reindustrialization was focused on cleaning up lesser contaminated buildings instead of the higher-risk, higher-cost project, thereby reducing DOE's return on its investment while not reducing closure costs.

2003 DOE begins discussing transferring the title of ETTP buildings that CROET currently leases. Bechtel Jacobs's cleanup contract milestones rely on transfer.

2003 Bechtel Jacobs is selected to implement DOE's accelerated cleanup plan.

2003 Transuranic Waste Processing Facility is built.

2003 All spent nuclear fuel is shipped from the Oak Ridge Reservation to various locations for safe disposal.

2003 Excavation of the K-1070, a burial ground at East Tennessee Technology Park, is completed.

2003 Record of decision is issued for East Tennessee Technology Park Zone I soil remediation.

2004 Shipments begin of more than 6,000 depleted uranium hexafluoride cylinders from East Tennessee Technology Park to Portsmouth, Ohio, for disposition.

2005 CROET assumes fee ownership to four buildings at ETTP with the understanding that six more buildings will be transferred within the year.

2008 ETTP target completion date.

WACs at Oak Ridge

Community Priorities and Challenges for the Federal Reservation

ORR is home to the National Nuclear Security Administration (NNSA) and the DOE Offices of Science and Environmental Management (EM), all with jurisdiction over distinct programs at the site. The Office of Science has primary responsibility for the site. According to

one DOE official, EM views its programs within the context of the ongoing mission, noting that it helps DOE succeed in the overall site mission because the environmental legacy, if not addressed, limits DOE's ability to accomplish its future mission. Once remediation activities are completed, DOE and local officials believe the area will be better positioned to attract new DOE missions and private businesses.

The Oak Ridge community's priority related to the DOE site is the ongoing mission at Y-12 (managed by NNSA) and ORNL (managed by the Office of Science). Other priority issues, which must be viewed in the context of the ongoing mission, include:

- Remediation
- Long-term stewardship
- Reindustrialization
- Economic self-sufficiency
- Emergency management
- Historic preservation

One of the core challenges that city officials face is addressing concerns about contamination. They firmly believe these concerns have hurt the city's ability to strengthen its economy and for the DOE-designated community reuse organization to attract new businesses that would reindustrialize portions of ORR. While city officials and community members posit the challenge is one of perception versus reality, the challenge is nevertheless real and these concerns affect the area and thus influence the city of Oak Ridge's engagement on ORR issues.

Economic diversification and self-sufficiency are priority issues for the city, whose officials question whether DOE is paying its fair share. City officials also mention that only 20 percent of land that was identified as available for conveyance to the city has been conveyed. Coupled with the fact that the city faces the classic challenge of how best to operate its budget when 60 percent of land is exempt from taxes, the city has actively pushed for additional financial resources. These efforts have included pressing for an increase in payments in lieu of taxes (PILT) from DOE and promoting legislation in the state legislature to impose a "tipping fee" on DOE for disposal of wastes at ORR. Neither option has proven successful, leaving the city to search for alternative sources to meet its financial needs.

Exacerbating the community's concerns is the fact that in recent years approximately 10,000 ORR jobs have been lost. ORR remains a major economic engine. DOE-related employment in the state totaled 11,951 workers in 2004, which would have ranked it as the fourth-largest employer in the state among non-governmental units.[31] As community leaders note, the ongoing mission is of paramount importance because the economic benefit to the city and regional economy dwarfs the economic contributions of cleanup and reindustrialization.

[31] "The Economic Benefits of the U.S. Department of Energy for the State of Tennessee, 2004," Center for Business and Economic Research, College of Business Administration, University of Tennessee, June 2005, and 2004 data from the Tennessee Department of Economic and Community Development Web site, http://www.state.tn.us/ecd/pdf/top50empl.pdf.

DOE, for its part, looks regionally when evaluating the economic benefits it has created. Specifically, since the mid-1990s, DOE's Office of Worker and Community Transition (now part of the Office of Legacy Management) provided nearly $54 million to the Community Reuse Organization for East Tennessee (CROET) for regional redevelopment. CROET is a regional entity but the city is seeking more locally focused contributions, such as directing funds toward local schools, instead of those beyond its boundaries.

Detailed Discussion of Findings

1. Developing Goals and Identifying Future Use of the Site

In 1996, DOE issued a draft proposal for remediating four surface water impoundments at ORNL, which included developing a disposal cell. The State of Tennessee, while preferring an alternative approach, noted DOE's decision-making process lacked community involvement. In response to these concerns, DOE directed the DOE-funded Oak Ridge Site Specific Advisory Board (ORSSAB) to initiate a process to develop a community vision for a remediation strategy for ORR. The advisory board created the 20-member End Use Working Group (EUWG).

K-25 Cylinder Inspection, 1994

According to the working group's final report, the specific scope of work included:

- Recommending end uses for contaminated areas at ORR; and
- Identifying community values that could be used to guide DOE remediation goals and its decision-making process.

Eighteen months later in July 1998, the EUWG issued two comprehensive reports that formed the basis for EM's remediation strategy at ORR. Its evaluation focused on surface use, soil cleanup levels (including depth of cleanup), groundwater use, surface water use and ownership. DOE provided technical financial, and logistical support, which reaped huge rewards in building a common vision for the future use of the portions of ORR under EM's jurisdiction.

This process is central to understanding the role of the community in EM's cleanup program as it set the stage for all cleanup and future use decisions and activities to come. The city of Oak Ridge, however, never endorsed the EUWG's recommendations and feels that DOE should have reached out to it directly instead of, or in addition to, the EUWG in defining the cleanup goals for ORR.

2. Accomplishing Cleanup: Focusing on and Refining Goals Throughout the Cleanup Process

The Oak Ridge community has played important and varied roles in DOE's planning and implementing the accelerated cleanup program at ORR. There is an important cadre of community members who are engaged, technically knowledgeable, committed to public involvement, invested in the future of the site, and who work hard to identify solutions to technically, politically and procedurally difficult issues.

All parties believe that the consistent engagement and support of the community (elected officials and non-elected community representatives) has been central to the success of the cleanup project. Non-elected officials, particularly the ORSSAB and the Local Oversight Committee (LOC), have rigorously tracked site cleanup issues. Additionally, as a general proposition, elected officials and community members who are engaged on cleanup issues (supporters and detractors alike) understand the technical elements of cleanup decisions, including questions regarding risk that underlie the question of how clean is clean. As importantly, DOE and the aforementioned community members who are actively engaged on site issues generally view risk in the same manner.

This dynamic has created a strong foundation on which discussions and compromises are based. DOE, local governments and community members have a measurable track record of committing to seek common ground on cleanup decisions. For example, community members, through the EUWG, advocated cleanup to an unrestricted industrial use level as opposed to a level that would allow for residential use. Similarly, the city of Oak Ridge supported DOE's decision not to remediate the classified burial ground at ETTP. In the case of Lower East Poplar Creek, community members pushed for a more limited cleanup of mercury, thereby saving DOE tens of millions of dollars. Community support for a more limited remediation was based on a technical analysis that concluded that remediation activities would increase potential impacts to human health and the environment.

DOE notes that in order to address specific community concerns it also has taken steps that run counter to a strict risk-based approach to cleanup. Specifically, DOE met community and local government interests by agreeing to (1) support historic preservation and (2) leave areas of ETTP in a condition that facilitated industrial reuse of portions of that site, despite the fact that these actions increased DOE's costs.

These decisions are important because they highlight what ECA believes is fundamental to the successes at ORR:

- The identification of needs;
- The evaluation of areas for common ground between the decision makers (DOE and the regulatory agencies) and the affected parties (local governments and community members); and
- The ability to reach agreement.

Closure contract

As ECA has observed at each of the three sites it reviewed, the cleanup contract has served to inform the community of the progress at the site, which helps build confidence in cleanup activities. As numerous people commented, the closure contract identifies a scope of work that helps establish expectations. These expectations are vital to community and local government support, and in holding the contractor to the scope of work and all parties to the milestones, elected officials and community members alike can measure progress and hold DOE accountable. When milestones are being met, as they largely are at ORR, trust and accountability are built and strengthened.

Reindustrialization — An Unparalleled Challenge

ORR and the community are not without their struggles. Reindustrialization highlights the process by which goals are refined throughout the cleanup process but also brings to a head the struggles DOE and the community have faced. Reindustrialization is broadly viewed as important to the economic health of the region, but there are deep divisions about the effectiveness of the reindustrialization efforts to date. This effort has alienated various factions of the Oak Ridge community and has left citizens questioning the benefit of reindustrialization to the community.

As background, the central factor driving industrialization in the mid- to late-1990s was that DOE felt it had neither sufficient funding to maintain buildings at ETTP nor enough money to take them down. Reindustrialization principally became a mechanism for saving DOE's budget while secondarily providing funds for the host community. While EM is not in the economic development business, it has taken numerous steps to allow for areas at ETTP to be reindustrialized.

In order to successfully reindustrialize the site, all parties had to refine the cleanup goals. In general, the process DOE followed was to work with CROET to determine which buildings were suitable for reindustrialization, and then remediate the targeted buildings to a level that allowed CROET to lease the facilities to private industry. After remediation, if CROET was unable to lease a building, it was demolished, thereby increasing EM's cleanup costs. This process of identifying the needs and modifying the cleanup plans to allow for reindustrialization thus becomes a further refinement of the cleanup process, as DOE and CROET evaluate cleanup and future use goals in tandem and make cleanup determinations on a building-by-building basis.

Despite this process, which engages DOE, the regulators and the CROET board of directors, deep problems remain and thus important lessons are understood that may prove critical to reindustrialization efforts at other DOE facilities. Significant federal dollars and capital have been expended, yet there remain deep divisions within and dissension from local government and community members. Decisions are being made that have broad impacts on the economic revitalization of the region, yet the city of Oak Ridge, despite its seat on the CROET board, appears to have a minor influence on important economic sustainability issues. These concerns and the concerns expressed by community members raise serious questions concerning how the process DOE has followed has led to such distrust and dissatisfaction among a broad cross-section of the community, the intended beneficiaries of DOE's largesse. Community

members who are actively engaged in site-wide issues and who are supportive of the cleanup likewise question the effectiveness of the program.

3. Engaging the Community: Consultation, Coordination and Communication

When discussing the role of the community, one must differentiate between the role and contribution of elected officials (and their staffs) and that of non-elected community members. Therein, ECA believes, lies the crux of the challenge for successfully partnering with the community.

Oak Ridge Site Specific Advisory Board and Local Oversight Committee

In general, the ORSSAB is highly engaged on site issues, as is the LOC, particularly the LOC Community Advisory Panel. The ORSSAB and the LOC have established forums to bring together community members, DOE and regulators to be briefed on and discuss the broad suite of site issues. The dialogues are technically based but also fold in important policy issues.

K-25 cleanup

The active engagement of ORR officials who abide by the policy of "no surprises" inspires trust in the decision-making process. Community members are provided site cleanup documents, have the opportunity to engage decision-makers, and can use the CERCLA process to comment on cleanup documents. While community members stressed the value of off-line conversations, they are likewise highly comfortable with the communication structures that CERCLA regulations provide. They believe that the ORSSAB and LOC provide the needed structure for community members to address ORR issues.

Funding (federal in the case of ORSSAB; state in the case of the LOC) is essential to both organizations; without funding, neither would have the means to engage to the extent they do. ECA firmly believes that as shown at other DOE sites throughout the complex, the limited funding DOE has provided to such organizations to foster and promote organized forums for community engagement has reaped even larger cost savings as DOE has been able to create the conditions whereby the community understands and agrees with the mission and goals for the cleanup program.

City of Oak Ridge

In contrast to the ORSSAB and LOC, the city of Oak Ridge's role is less clear. The LOC ostensibly represents the city, but what is on paper is not representative of the true dynamic between the LOC and the city. Similarly, while one city councilor also served on and chaired the ORSSAB, he did so as a citizen, not as a city representative, so the ORSSAB likewise did not become a means by which the city's interests were formally represented.

The net effect was summed up best by one member of the city council who observed that the city is not sure of its role, and not sure if it always can make contributions or recommendations. The councilor continued by noting that if there is a major city interest in an issue then the city needs to create its role. This position is consistent with comments made by other city officials who note that DOE makes decisions without properly involving or reaching out to the city. These assessments come despite the fact that the mayor and DOE manager meet bi-weekly and that DOE likewise meets regularly with the city's Environmental Quality Advisory Board.

As exemplified in the discussion in Section #4 ("Resolving Conflicts to Achieve Goals"), there appear to be important questions regarding the ability of the local governments and DOE to cooperate and resolve difficult issues without dividing the parties. ECA attributes this problem to the fact that there is no formal, organized, mutually beneficial forum for the city and DOE to resolve problems. This problem is compounded by the fact that the city does not have full-time staff dedicated to tracking and engaging on site issues; instead, a number of staff drive city policy. On any given issue, the city point person could be the mayor, the government affairs director, the fire chief or the police chief. (As discussed elsewhere in this report, the city of Miamisburg and the Rocky Flats area governments have taken a very different approach to organizing local government.)

The City of Oak Ridge's Predicament: DOE Mission versus Non-DOE Mission

The federally funded ORSSAB focuses on issues that are central to the EM mission. The state-funded LOC likewise focuses on state issues. CROET, the DOE-designated community reuse organization for ORR and surrounding environs, focuses on reindustrialization at the technology park, which has become part of EM's mission.

The city of Oak Ridge's primary concerns with ORR are the ongoing mission, reindustrialization, and federal payments such as PILT and the tipping fee. With the exception of providing the social and economic environment that supports the ongoing mission, these priorities are neither central or even vital to DOE's cleanup mission nor result in strategies that save federal dollars. Furthermore, the city is not a member of the ORSSAB, believes that the LOC largely does not represent it, and while supportive of reindustrialization efforts, reaps little tax benefit from CROET's programs. The city therefore indifferently supports CROET.

As noted above, the city communicates with DOE but does not have a specified forum for engaging the department on issues central to the city's priority of economic sustainability. There are numerous instances where DOE seeks to provide economic assistance to the city, but as evidenced by the dispute over the tipping fee legislation (discussed in Section #4 below), DOE

will go only so far and even will push back when it perceives a city action could financially impact the cleanup mission.

Partnering with DOE

In order for the community to effectively work with DOE, the department must treat the community as a partner. Accordingly, in Oak Ridge, DOE is committed to actively engaging the community.

Local governments and community members have good access to the state and federal decision makers, and key individuals at DOE remain committed to substantive public involvement. However, as one city official noted, the city must "develop relationships with DOE to get answers but hold them at arm's length and challenge them."

More specifically at Oak Ridge, DOE has taken the following steps to engage the community:

- Providing technical documents to the community;
- Hosting and participating in technical discussions;
- Briefing community members;
- Maintaining a community information center; and
- Providing financial resources to support community involvement.

On a more subtle level, engagement means the DOE manager acting as the community's advocate when working with DOE officials in Washington, D.C. It also means building trust by sticking by established commitments, which is best exemplified by DOE's decision to not change cleanup goals and actions through the risk-based end states process.[32]

While a community organization need not have an established status conferred by DOE (like an EM SSAB or CRO), one community member observed that DOE sometimes will brief the ORSSAB (a DOE group) but not the LOC (a state group). The net result, from what ECA can discern, is that city officials and community members grumble, but trust between the local and federal parties is not fundamentally altered, much less undermined.

The regulatory process defines formal public involvement, and DOE- and state-recognized groups often provide the mechanism through which DOE and the state and federal regulators engage local governments and community members. In addition, informal contact between the local and federal parties has proven vital to building confidence in decision making and in the results of the cleanup. All parties support following CERCLA strictly, which includes formal public comment periods on records of decision (RODs), but after RODs are signed, there are times when local governments and community members assert themselves and continue to

[32] "Risk-based end states are representations of site conditions and associated information that reflect the planned future use of the property and are appropriately protective of human health and the environment consistent with that use," Use of Risk-Based End States, DOE Policy DOE P 455.1, approved July 15, 2003.

engage on the technical and policy questions. Their impact during this part of the regulatory process, however, seems mixed at best.

Haul Road Decision — Where Strict Adherence to Minimum CERLCA Requirements Falls Short

While DOE's track record of working with the community is positive, there are exceptions. The 2005 haul road decision exemplifies when DOE's approach to working with the community does not match community expectations or needs. After a site contractor accidentally spilled strontium on a county road when transporting waste to the ORR landfill, DOE decided to build a haul road to transport wastes to the landfill without having to leave the site. While community members told ECA they generally supported this decision, many said that the process for engaging the community was too narrowly tailored to the minimum requirements mandated under CERCLA.

DOE and the regulators, as they always do at ORR, closely follow the community involvement regulations established under CERCLA. Since the nature of the haul road decision does not require DOE to seek formal community involvement or comment, as one city official commented, "the bulldozers were running before DOE came to the council." ORSSAB expressed similar concerns.

The process DOE followed in working with elected officials and community members on the decision to build the haul road is indicative of a larger conflict: the use of explanation of significant differences (ESD) and the alienation that elected officials and community members feel when DOE opts for this approach. CERCLA provides specific instances where DOE can amend an approved ROD without seeking additional public comment. Where people appear to have fallen into a trap is by confusing what CERCLA mandates with what CERCLA allows. By refining an approved ROD under an ESD, DOE unnecessarily alienated the community. DOE discussed its decision with the ORSSAB, but did not allow the community to help scope potential solutions or otherwise substantively engage in the decision-making process. ORSSAB members, nevertheless, raised a number of issues that were rejected by DOE, including: design, route selection, economics, potential environmental and cultural resource impacts, transportation safety, and adequacy of waste characterization. In the end, the ORSSAB concluded that project needs had been "evaluated more thoroughly than has been presented and to a level more consistent with a National Environmental Policy Act assessment."

The community concerns raised by the haul road decision are rooted in the idea that unless CERCLA requires formal public comment, DOE's attempt to reach out to elected officials and community members is minimal. As a community member at the Mound site recently remarked, DOE "cannot step out of CERCLA and work with the real world." Rocky Flats provides an important contrast to DOE's approach in working with the Oak Ridge community.

4. Resolving Conflicts to Achieve Goals

DOE, the regulators, elected officials and community members clearly have developed a constructive working relationship. However, the conflicts that have arisen suggest that the parties involved have not exhibited the means to resolve politically divisive issues.

Among DOE, the regulators, elected officials and community members, specific instances suggest that the relationships have not been thoroughly tested and thus it remains unclear how the parties would tackle decisions where the parties had significantly different goals. ECA cannot determine whether the parties could reach common ground on tough decisions, nor can ECA ascertain how disagreements on one issue affect disposition of other issues. There are, however, two examples to support the proposition that when faced with differing goals, the parties become polarized, thereby straining existing relationships: the tipping fee legislation and the Three Bend decision.

Regarding the 2005 tipping fee legislation, the city of Oak Ridge tried to meet a fundamental objective of the city — economic self-sufficiency. In return, the city found itself at loggerheads with DOE and without the backing of its congressional representative. DOE and the contractors even threatened to withdraw financial support for a new high school. The city backed down, but the damage to the relationship was done.

The Three Bend decision presents other challenges. On June 23, 1999, DOE Secretary Bill Richardson designated 3,000 acres of ORR land as the Three Bend Scenic and Wildlife Management Refuge Area, which would be managed under a cooperative agreement with the Tennessee Wildlife Resources Agency. The designation was praised by environmentalists but vilified by city officials because part of the area included parcels that were designated for the city's future development under its self-sufficiency agreement with DOE, which was signed in the mid-1980s.

DOE's decision to designate Three Bend as a conservation area also raises questions about the enforceability of commitments and about the capacity of the parties to constructively disagree. The city remains unhappy with DOE's decision to set aside these lands; the city would not necessarily have signed its self-sufficiency agreement with DOE in 1985 if it knew that DOE would not convey some of the Three Bend property to the city for economic development and tax base expansion. Procedurally, the city argues the Three Bend decision was unilateral and from what ECA can discern, the city's goals and DOE's goals in designating the site a reserve are in fundamental opposition. The LOC, for its part, believes that should the city or others move to open Solway Bend (part of Three Bend) for development, the LOC could not issue a recommendation because of the inherent conflicts within the organization — namely the government representatives would take one position and the LOC Community Advisory Panel another. The community then could find itself faced with the city taking one position, the ORSSAB (perhaps) another, the LOC remaining silent and DOE not having a clear mechanism for bringing these parties together.

The tipping fee and Three Bend refuge decisions are important for they highlight a fundamental challenge facing DOE and communities looking to develop constructive relationships. In a community like Oak Ridge where the relationship between DOE and the

elected officials and community groups is fundamental to the success of EM's cleanup program, there are real limitations that result in the inability of the parties to tackle critical issues. This breakdown strained relations. As one official close to the tipping fee legislation noted, the disagreement between the city of Oak Ridge and DOE "set relationships back years."

CASE STUDY: MOUND SITE

The environmental cleanup of DOE's Mound facility presents an important opportunity to analyze the factors necessary to close a former nuclear weapons facility and convey it to a non-federal entity, the Miamisburg Mound Community Improvement Corp. (MMCIC), for economic reuse. For the purposes of this report, the cleanup and transition likewise present a chance to evaluate and learn how an affected community can strive to be an equal partner with DOE and the challenges they encountered.

Politics of Cleanup

The decision to cease operations at Mound sent shock waves through this community of less than 20,000 residents. The subsequent decision to reindustrialize the site presented opportunities and challenges for DOE, the environmental regulators and the community. By engaging the community and especially elected officials on a suite of cleanup and transition issues, decision makers focused the project on the shared needs and goals of DOE and the community and thereby gained vital local support for the cleanup mission and future use goals — and with this support DOE accelerated cleanup.

As a generalization, the process the parties followed for scoping the cleanup, gaining congressional support for an accelerated cleanup, engaging the community and addressing concerns worked. While there were difficult issues to solve, the most recent being the dispute over the cleanup of the OU1 landfill, the cleanup and transition of the site served to meet the shared interest of DOE and the community.

Background — History of Mound and Key Issues

The Monsanto Chemical Corp. began researching the chemical and metallurgical properties of polonium at the Mound site in 1943. Over time the site became increasingly important to the economic and social welfare of Miamisburg. From 1948 to 1991, Mound operated as a research, development and production facility supporting the Atomic Energy Commission's and later DOE's weapons and energy programs, with an emphasis on explosives and nuclear technology.[33]

As the nation became increasingly aware of environmental concerns through the 1970s, Mound expanded its programs to include energy conservation and waste management practices. In the mid-1980s, following the passage of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Resource Conservation and Recovery Act (RCRA), Mound activities expanded to include an evaluation of the nature of environmental contamination. This evaluation included identifying potential exposure pathways and impacts to human health and the environment, analyses that later would prove critical to establishing key remediation goals and to the community's support for the cleanup project.[34]

Work at Mound was halted in 1991 when the first Bush administration announced that defense-related operations would be terminated and the site would be closed. Faced with the loss of 2,200 site jobs, the city of Miamisburg, a community of 18,000 situated 10 miles southwest of Dayton, worked with area residents and regional leaders to reverse the decision. When the Clinton administration affirmed the closure, the city redirected the energy that went into fighting to keep Mound open toward reindustrializing the site as a privately owned technology park.[35]

To facilitate this vision, the community — led by the city of Miamisburg and MMCIC — developed a detailed reuse plan and lobbied DOE and Congress to allow the site to be cleaned to

[33] "Miamisburg Closure Project Risk Based End State Vision," draft, U.S. Department of Energy, Ohio Field Office, February 2004, introduction section, p. 1.
[34] Ibid., introduction section, p. 3.
[35] All City and MMCIC officials with whom ECA spoke stated the community has been better off with site being closed and reindustrialized as this option presents a better option than keeping a nuclear weapons plant inside of the community.

a level that would permit its reuse as a technology park. This vision, known as Mound 2000 (discussed in depth below), was integrated into the federal facilities agreement and underpinned DOE's accelerated cleanup program as it provided the needed basis for determining the end-state remediation goals. Mound 2000 centered on remediating the site to a risk level and in a manner that allowed for the entire site and nine buildings to be transferred to MMCIC for redevelopment.

In furtherance of this goal, MMCIC and DOE concluded more than a year of negotiations by entering into a sales contract and a memorandum of understanding in 1998 that spelled out the terms and conditions for transferring the site to MMCIC. The agreement also provided a commitment of federal funds to MMCIC to implement the reuse plan. The contract further specified the roles, responsibilities and restrictions that each party would follow as the

Mound, 1949

Mound planned reuse

remediation progressed and areas were transferred to MMCIC. However, MMCIC and DOE continued to disagree on key terms of the sales contract as it related to the remediation of the OU1 landfill. DOE argued that the risks posed could be managed by treating the contaminated groundwater; the city and MMCIC argued that the health risks posed from the landfill and negative impacts to redevelopment efforts would necessitate excavating the landfill. The dispute was complicated by the fact that the OU1 ROD was signed in 1995, prior to the adoption of Mound 2000.[36]

Timeline

1943 The legacy of Mound starts with the Monsanto Chemical Corp. researching the chemical and metallurgical properties of polonium in Dayton, Ohio.

[36] "The major components of [the OU1] remedy include: installing two groundwater extraction wells within OU1, using standard equipment and procedures; treating the extracted groundwater to remove VOCs and other constituents, as required, using cascade aeration, UV oxidation, conventional air stripping, or other suitable treatment units; and discharging the treated groundwater to the Great Miami River through the existing plant NPDES outfall or a new outfall. Following installation and operation of the groundwater extraction wells, the chemical properties and hydraulic behavior of the groundwater system will be monitored to verify the adequacy of the remedy. (Source: "Superfund record of decision (EPA Region 5): Mound Plant (USDOE), Operable Unit 1, Area B, Miamisburg, Montgomery County, OH, June 12, 1995," http://www.osti.gov/energycitations/product.biblio.jsp?osti_id=218666.)

Politics of Cleanup

1946	Monsanto secures land south of Miamisburg, Ohio, for what is now the Mound plant.
1947	In January, the federal government purchases land for the construction of the Mound Plant for the purpose of research into atomic energy and the possibility of peacetime uses of the atom.
1948	The Atomic Energy Commission takes over the Mound site and begins research, development, and production programs. Mound would operate for 43 years as a research, development and production facility performing work in support of DOE weapons and energy programs, with an emphasis on explosives and nuclear technology.
1969	A plutonium waste line breaks which ultimately contaminates the Miami-Erie Canal with plutonium-238.
1981	DOE purchases an additional 123 acres south of the original 182 acres for potential mission expansion but the property remains undeveloped due to the lack of additional work scope.
1989	The primary mission at Mound, including process development, production engineering, manufacturing, surveillance, and evaluation of explosive components for the U.S. nuclear defense stockpile, ceases and the new mission of environmental cleanup begins.
1990	DOE and the U.S. Environmental Protection Agency (EPA) sign the Federal Facilities Compliance Agreement; the Ohio Environmental Protection Agency (OHEPA) signs it in 1993.
1991	Work at Mound is halted; the decision is reaffirmed in 1993.
1995	Record of decision for OU1 is signed, providing for VOC contamination from the aquifer to be pumped and treated. Treatment started in 1997 and to date more than 250 million gallons of groundwater have been treated.
1995	Administration of the Mound Site transferred from the Office of Defense Programs to the Environmental Management Office.
1998	DOE and the Miamisburg Mound Community Improvement Corp. (MMCIC) sign a sales contract and memorandum of agreement for transfer of Mound to MMCIC.
1999	DOE begins transferring parcels to MMCIC for redevelopment. Transfers carry with them institutional controls that restrict future use to industrial/commercial use. MMCIC begins to sublease buildings and improve facilities on the site.
2001	MMCIC submits a proposal to DOE to take over the cleanup of the site based on its frustration over the slow pace of cleanup.
2002	On December 5, DOE announces that CH2M Hill has been awarded a $314 million performance-based cleanup contract.
2005	Congress authorizes DOE to excavate the OU1 landfill and appropriates $30 million for the project.

2006 DOE awards OU1 landfill excavation contract. Project is scheduled to be finished in late 2007.

2007 Mound accelerated cleanup target completion date.

DOE's mission at the Mound Site was straightforward: remediate the site to a level and in a manner that would allow the entire facility to be transferred to the community reuse organization, MMCIC, for a research and business park. In furtherance of this goal, two DOE program offices, EM and the Office of Worker and Community Transition (now part of the Office of Legacy Management), directed substantial funds and effort toward ensuring the community had the resources necessary to partner with DOE and that DOE had the resources necessary to expedite cleanup activities and transfer the site on a parcel-by-parcel basis to MMCIC.

The fundamental challenge facing DOE, the regulators and the community was the lack of a model within DOE on how to accomplish reuse. Up to this point in time, only one DOE site — a nuclear weapons research facility in Pinellas, Florida — had been contemplated for reuse and transfer to a community; however, DOE looked to the Department of Defense for examples of reuse of closed military bases. As was the case with many of the actions and decisions the parties faced at Mound, DOE, the community and the regulators were on the leading edge of how to clean up a site and create a long-term beneficial use.[37] As a case in point, the Ohio Environmental Protection Agency (OHEPA), the state regulator, was used to requiring cleanup to background levels of contamination; the regulator had to adjust its thinking when the community approached it in support of remediating the site to an industrial use as opposed to an unrestricted residential level.

As expected, a few roadblocks emerged throughout the years. Some of the challenges included solving the technical obstacles to remediating a site where contamination has spread to off-site lands, developing and implementing a reuse plan, conveying land and personal property to MMCIC, transferring utilities to the city, identifying the defined cleanup level, and enticing businesses to relocate to the site.

Role of the City of Miamisburg and MMCIC

What separates Mound from Oak Ridge and Rocky Flats is the way in which one municipality positioned itself as the dominant voice for the community. The city of Miamisburg was actively and intimately involved in the cleanup and reuse of Mound. The city's role included:

- Reuse planner, including advocating for an accelerated cleanup.
- Convener of broad stakeholder advisory group which focuses on cleanup (Miamisburg Reuse Committee (MRC)).
- Creator of an independent development corporation which focuses on reuse (MMCIC).
- Community representative with DOE.

[37] Just as the site started out as a laboratory, Mound, along with Rocky Flats and Fernald, was one of DOE's test cases —in essence, a laboratory for how to bring together the technical, policy and political issues that underlie the cleanup of nuclear facilities.

- Advocate of congressional action.
- Provider of utilities and other services.

More broadly, the city is charged with championing reuse of the facility through MMCIC.

In 2001, out of its deep frustration with the pace of the cleanup, MMCIC, with the city's strong backing, submitted to DOE a proposal to assume the cleanup contract. MMCIC and the city were not enthralled by the idea of assuming the cleanup contract, but remained committed to DOE accomplishing the goal of Mound 2000 to accelerate the cleanup and transfer of the site for industrial reuse. The city and MMCIC pushed DOE to accelerate the cleanup. Congress, particularly the House Energy and Water Appropriations Subcommittee, expressed concern about the pace of the cleanup and even threatened to reduce or withdraw funding for the project. DOE ultimately rebid the contract, which was awarded to CH2M Hill. MMCIC participated in important elements of the contracting process.

Detailed Discussion of Findings

1. Developing Goals and Identifying Future Use of the Site

The closure of Mound gave DOE the opportunity to transfer the site to a private entity, MMCIC, whose mission is to acquire, develop, market and redevelop the facility. The Mound 2000 cleanup plan was created by MMCIC with input from the community and approved by DOE and state and federal regulators in the spring of 1995; however, it took a number of years to finalize the plan and for DOE and MMCIC to reach agreement on the cleanup levels and sign a sales contract and a memorandum of agreement.

Mound 2000 — An Overview

The Vision

The overall goal of Mound 2000 was to remediate the site to a level to permit future use, thereby making the site available for economic redevelopment. As part of accomplishing this goal, DOE and the state and federal regulators revisited their approaches to remediating sites under CERCLA and RCRA. For starters, the city and MMCIC pushed the regulators to support a cleanup approach that abandoned the norm of cleaning up contaminated sites to residential cleanup levels and instead to support remediation to an industrial standard.

What is most important about this process and subsequent decision is that the city's vision provided the framework for what to do with a former weapons research facility. Because the regulatory agencies agreed that as a matter of law and public policy such an approach was legally compliant and appropriate for the site-specific future use goals, the vision became the catalyst for bringing together the Federal Facilities Compliance Act parties (DOE, EPA and OHEPA) and the city around a common vision for the future cleanup level of the site.

This common vision for cleanup goals and future use provided the foundation for the successful partnership. Community leaders' strong support for remediating the site to a level

that would be protective and enable industrial reuse was central to opening a realistic avenue for remediating Mound. But that support and vision were not enough. In order to accelerate closure at Mound, DOE and the state and federal regulators, as they did at Rocky Flats, needed to streamline the regulatory process.

The Regulatory Process Supporting the Vision

Mound initially was divided into nine operable units (OUs). Per standard approaches to environmental cleanups, DOE would conduct a CERCLA remedial investigation/feasibility study (RI/FS) for each unit and then issue a ROD, all prior to starting a cleanup action. This laborious process would take years to complete, thereby delaying transfer of the site to MMCIC. Political expediency necessitated that DOE and the regulators adopt a different approach.

As done at Rocky Flats, and with the agreement of the state and federal regulators, Mound 2000 flipped the CERCLA process and allowed for an accelerated cleanup under CERCLA removal authority.[38] To facilitate economic reuse of the site, the closure project was divided into "release blocks." Releasing the site parcel-by-parcel allowed those portions of property that DOE remediated to be redeveloped while DOE proceeded with the cleanup of the remainder of the site. This approach allowed DOE to remove liabilities from its books and remediate others, while the city began reaping the economic benefits of the cleanup.[39] The RI/FS, which typically is one of the first steps in the regulatory process, came at the end after cleanup actions were completed. The final step before a parcel is transferred is issuance of the ROD.

Mound 2000 — Reuse Planning Process

MMCIC developed a collaborative reuse planning process that integrated the CRO structure that DOE requested with the city's public hearing process. A land use plan, which was approved by the city via a public hearing process, established the future use of the site as industrial. MMCIC used this guidance to develop a range of market options for a consultant to evaluate from a financial and market absorption perspective. The plan had to be financially — not to mention politically — viable. Three options were presented to the community with a recommendation from the consultant to pursue a technology and industrial park at the site.

MMCIC refined the reuse plan over time to achieve greater budget accuracy and to reflect a variety of other changes. Major reviews of the plan are undertaken every five years.

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[38] For a description of the regulatory process, see "Mound 2000 Cleanup Decision Making Process," Office of Environmental Management, U.S. Department of Energy, http://web.em.doe.gov/tie/spr9606.html.

[39] The remediation activities focused on the following activities:

1. Decontaminating and demolishing (D&D) buildings to allow for future commercial reuse;
2. Remediating volatile organic compound (VOC) contamination in soil and in groundwater;
3. Remediating radionuclide contamination in soil; and
4. Monitoring tritium levels in bedrock aquifer and off-site seeps.

2. Accomplishing Cleanup: Focusing on and Refining Goals Throughout the Cleanup Process

Because the community drove key elements of the cleanup and future use strategy, these goals were not substantially refined during the cleanup process. The bulk of the community's engagement on site issues since the mid-1990s was on (1) ensuring the cleanup is being accomplished, something that was not happening until the "closure" contract began to be implemented in late 2002, (2) ensuring that the specific cleanup actions support the future use vision for the site, and (3) supporting and promoting reindustrialization efforts.

Building Trust and Role of the Closure Contract

Trust, as ECA observed at Oak Ridge and at Rocky Flats, is central to a successful cleanup effort and is vital to developing and maintaining a successful partnership between DOE and the community. Trust at Mound waxed and waned over the years, and much of this cycle hinged on whether DOE and the community shared a vision and whether that vision was being met. At Mound, trust was based on several factors: (1) whether DOE was forthright with information, (2) whether the community sought to partner with DOE, and (3) whether the parties upheld the spirit and intent of their agreements.

At Mound, like so many other contaminated federal sites, there were times when community members confused trust with whether they liked a particular decision. In such cases, trust was not a matter of being forthright or keeping commitments but instead hinged on outcomes. In other words, if the parties approved of the others' actions then trust increased. Yet, added to the mix, DOE has a historically poor track record of keeping commitments, so trust can vanish overnight. And while DOE must keep its commitments at all costs, as all parties must do, trust still may fall.

An equally compelling aspect of building trust stemmed from DOE and its contractor demonstrating they were making progress on the cleanup. From the late 1990s through 2002, MMCIC and others wrestled with DOE's lack of a credible cleanup schedule. Until CH2M Hill signed the closure contract in 2002, MMCIC believed DOE's prime contractor, Babcox & Wilcox, measured success by how many people did not get hurt, as opposed to completing a scope of work that reduced risk and allowed buildings and property to be transferred to MMCIC. As one MMCIC official noted, "Safety is an assumption. We need to know what they did."

The closure contract signed by DOE and CH2M Hill largely remedied these concerns and therefore proved critical to moving the cleanup forward and garnering community support.[40] DOE, OHEPA, local officials and community members asserted that the contract provided the vehicle for its closure contractor to start remediating Mound. Part of the success and reason for strong community support for the closure contract was its integration of cleanup and reuse, an essential element of any cleanup effort and a key goal for MMCIC in redeveloping Mound.

[40] Under the terms of the contract, CH2M Hill demolished 66 facilities and transferred nine facilities to MMCIC for industrial reuse; removed all aboveground utility structures and components; investigated, cleaned up, closed and documented all known potential release sites (PRSs); and stored, characterized, processed, packaged and shipped waste and nuclear materials in accordance with Mound 2000.

As importantly, contract compliance became the basis by which MMCIC and others measured progress and success at the site. For this reason, performance-based closure contracts affect relationships beyond the parties to the contract, namely community members. In past years, progress was measured by the rate at which parcels were being transferred to MMCIC for reuse. Because of a slip in the schedule, DOE cut money for parcel transfer, so MMCIC measured progress by reviewing the integrated cleanup plan to gauge whether CH2M Hill was on schedule.

Finally, relations are built over time. Sometimes relationships developed over the Mound cleanup worked well, sometimes they did not. This led one interviewee to note, "Work with DOE but never fully trust them, as that is when you will get bit." This comment echoes a comment made by an Oak Ridge interviewee: "Develop relationships with DOE to get answers but hold them at arm's length and challenge them."

3. Engaging the Community: Consultation, Coordination and Communication

Of the three sites ECA evaluated, Mound is unique in the manner and degree to which one government (the city of Miamisburg, the host city) positioned itself as the dominant voice for the community. In doing so, the city ensured that its needs and the needs of its citizens were met.[41]

"Speak With One Voice"

City officials and MMCIC officials hold true to the idea that when a community speaks with one voice, the collective voice and role of all communities is amplified and their effectiveness is increased. When the Clinton administration affirmed the decision to close Mound, the city of Miamisburg sent resolutions to more than 40 neighboring communities and counties and the governor seeking their support for the city to speak for the region on Mound reuse questions. As city officials explained, their goal was to direct the future of the community and not worry about having other governments or organizations obstructing their efforts by sending mixed messages that could dilute the city's voice and the community's efforts.

One of the city's concerns stemmed from its understanding of the dynamic at Oak Ridge, where it perceived the engagement of numerous community groups on site issues as undermining the voice and effectiveness of the host governments. The city believed it imperative to bring all community groups, including site workers, together under one organization and to speak with one voice. The city opposed the creation of an EM SSAB, which would be subject to DOE control under the Federal Advisory Committee Act (FACA).[42] Instead, the city established the Mound Reuse Committee (MRC), which was set up similarly to an EM SSAB with the role of focusing on reuse and advising MMCIC. Because of the broad-based membership, community members — including local critics — supported the establishment of MRC.

[41] As discussed elsewhere in this report, this dynamic contrasts to Oak Ridge where the role and effectiveness of the city of Oak Ridge remains unclear, and to Rocky Flats where there are seven municipalities that focus significant time and effort on site issues.
[42] Public Law 92-463, 5 U.S.C., App.

Through the creation of MRC, the city assured that community members, including the local organization critical of site operations, the Miamisburg Environmental Safety and Health (MESH), would have not just a seat at the table but a substantive voice. As one city official noted, city officials met with MESH members to understand their concerns and to discuss with them their consultants' findings. Depending on the issue, the city even endorsed MESH's positions.

While the city largely accomplished its goal of speaking with one voice, as DOE and OHEPA noted, there were cracks in the unified front. MMCIC's tenants, for one, also have become stakeholders who often interact directly with DOE. DOE also noted there are other constituencies with various perspectives, including MRC, MMCIC, the Mound Museum Association, MESH and the park tenants. From what ECA can discern, DOE takes seriously these voices, especially that of MMCIC, its contractual partner. Nevertheless, as also seen at Rocky Flats in the last seven years, the local elected officials and their representatives remained the dominant voice for the community. That voice at Mound included MMCIC.

Communication

In nearly every interview, people consistently stressed the importance of good communication. The range of comments from local observers included:

- "Communication is essential so you need to give people the facts and present them in a manner that people can understand the information."
- "Prior to last year when the OU1 dispute took over, communication worked well."
- "We need good relationships for communication to be successful."
- "Communication breakdowns led to problems for DOE and for the Miamisburg community."
- "Communication is key and there cannot be a disruption on the communication chain."

What is notable about these five comments is that they were made by DOE, OHEPA, city officials, community members and MMCIC officials (although not necessarily in that order), thereby showing the breadth of the source of the sentiment. Communication, which was critical in order to advance the common vision, did break down, most notably around the dispute over the OU1 landfill. This breakdown polarized the parties and strained otherwise productive relations.

Until relations hit this low point in 2003, the city and MMCIC felt they had a constructive dialogue with DOE and its prime contractor. While strict compliance with CERCLA drove the community involvement process, community members had access to site documents they needed, worked directly with DOE and contractor personnel in formal and informal settings, and, even though there were some bumps in the road, had begun to address the various questions concerning the city's plan to assume ownership of site utilities.

Following CERCLA regulations, there are formal public comment periods that provide the regulatory mechanism for community input on site documents. City officials wanted to examine predecisional drafts as they were produced, as was the norm at Rocky Flats, but DOE

opted not to grant this request despite the fact that such dissemination of information was not prohibited under CERCLA. City officials told ECA at one time they were able to get such documents from the contractor through back channels, but because of the OU1 dispute, DOE cracked down on such informal contacts and limited community access to contractor personnel.

Nevertheless, despite the tension, as the future owner of the site, MMCIC attended weekly CH2M Hill meetings during which time work was planned and personnel in the field reported on cleanup progress. The city also was invited to attend these meetings but tended to participate only if there was an issue of immediate concern to the city.

Risk Management and Risk Communication[43]

At Mound there were divergent viewpoints about risk that affected the ability to settle lingering issues. DOE and the regulators took inconsistent approaches to address similar risks. The flashpoint for this issue was the OU1 landfill dispute where DOE, the regulators, city officials and MMCIC officials talked about the potential risks or perceptions of risk posed by leaving in place a hazardous waste landfill within an industrial park.[44]

If DOE were to cap the OU1 landfill instead of exhuming it, the city and MMCIC would worry that human health will be endangered (potential risks). Their greater fear, however, is that they would have trouble leasing buildings because of potential tenants' fears about the risks posed by the landfill (perceptions of risk). DOE believed the remedy as defined in the OU1 ROD would have more than adequately managed any potential risks. DOE further suggested the problem was rooted in poor communication — and if it had properly communicated risk, MMCIC and the city would not have pushed to excavate the landfill.

Exacerbating questions of risk was DOE's inconsistent approach to risk management. A disposal site known as PRS 66[45] presented similar risks posed by the OU1 landfill. Through a collaborative process with the community, DOE opted to dig it up. DOE officials now publicly state, much to the chagrin of local leaders, that there was no technical basis to dig it up and that in exhuming PRS 66, DOE cast the die for saying that when all else fails DOE will dig up a hazardous site.

Nevertheless, despite what the best science may support, if the city, MMCIC, MESH or other community representatives did not accept a given risk, regardless of the soundness of the

[43] See Appendix C for an expanded discussion of risk communication.
[44] See Section 4 for a longer discussion of the OU1 landfill dispute
[45] "Potential Release Site (PRS) 66 refers to the disposal site for construction soils and debris located under the parking lot which is southeast of Building 29 and 98 and the area around building 51. The parking lot area was once a steep ravine and has a long history of debris disposal including: disposal of 10,000 to 20,000 empty drums that once contained thorium-232 (1955-1966), a polonium-210 contaminated washing machine (date unknown), and a thorium-232 contaminated flat bed truck (mid 1960s). Other materials contaminated with polonium-210 (mid 1960s), such as exhaust system ducts from the remodeling of T-building, may have been disposed of in the area. Sampling confirmed significant thorium-232 and plutonium-238 contamination underneath the area and in the area south of building 51. Currently the area is an asphalt covered parking lot constructed in 1984. In 1990, a Magnetic survey was conducted at the parking lot in an attempt to locate buried ferrous materials (materials made of metal) beneath the parking lot." (Source: Exhibit 4, Section 1 of Miamisburg Closure Project Prime Contract Solicitation (DE-RP24-03OH20152), posted August 5, 2002, http://www.ohio.doe.gov/oh_seb.)

science, then there was little opportunity for DOE and the regulators to successfully partner with these community leaders to accelerate the cleanup. There is scientific risk and the risk one is willing to assume, and at times the two do not always match, especially, as discussed in Appendix C, when the risks posed are the result of man-made substances and are not naturally occurring risks.

Role of Congress

The community's close ties to its congressional delegation have been vital to the community advancing its agenda and achieving many successes at the site. The delegation's involvement mirrors the city's — it fought hard to save Mound from being closed and when that battle was lost, lawmakers shifted gears and worked on multiple fronts to ensure the site was transitioned in a manner and a timeframe that could preserve its role as a community asset. Some of the highlights include ensuring Congress funded the cleanup and economic transition activities, authoring legislation (the so-called Hall Amendment[46]) that authorized the community to be able to lease buildings, helping pass the Energy Employee Occupational Illness Compensation Program Act (EEOICPA),[47] actively participating in the Congressional Cleanup Caucus in the House, requiring DOE to develop a policy that promotes conveying property at no cost to a community, supporting the Section 3158 indemnification legislation,[48] and securing funding to excavate the OU1 landfill. The close working relationship greatly benefited the city and MMCIC, for as one city official said, "The squeaky wheel gets greased."

The city and MMCIC frequently visited Washington, D.C., to ensure that their congressional delegation and the leaders at the DOE headquarters knew and understood their needs, interests and goals. Upon identifying an issue that they thought was correct and that they needed to accomplish, the city and MMCIC did not take "no" for an answer and continually lobbied and informed people about their needs. When the law did not support clearly what they were trying to accomplish, they worked with their delegation on legislation to change the law to benefit their community.

A recent example is the OU1 landfill dispute, in which DOE said it would neither remove nor undertake any action related to removal of the landfill. MMCIC and the city believed that their contract with DOE clarified that the site would be cleaned to an industrial reuse and that by leaving the OU1 landfill in place, DOE was not holding up its end of the bargain. DOE disagreed. Over time, the city worked with its congressional delegation on legislation to resolve the dispute. The city successfully secured congressional appropriations language[49] that directed DOE to work with MMCIC to develop a "mutually acceptable remedy" that meets the spirit of the 1998 sales contract and sets milestones for the selection of a remedy for the landfill. The law provided DOE with $30 million to complete the landfill cleanup. A cleanup contract for the landfill work was awarded in October 2006, with completion anticipated in 2007.

Working With DOE

[46] Section 3154, Fiscal 1994 National Defense Authorization Act (P.L. 103-160).
[47] Section 3601, Fiscal 2001 National Defense Authorization Act (P.L. 106-398).
[48] Section 3158, Fiscal 1998 National Defense Authorization Act (P.L. 105-85); 50 U.S.C. 2811.
[49] Fiscal 2006 Energy and Water Development Appropriations Act (P.L. 109-103).

As noted above, the city, as the broad-reaching community representative, followed the credo "the squeaky wheel gets greased." Relations between the city and DOE, especially DOE's Ohio field staff, were strained for years. There were a number of reasons, all of which combined to reduce the ability of DOE and the city to partner and thus find common ground on areas of dispute.

The city disdained the fact that DOE treated it as a stakeholder, a label the city took to mean that DOE viewed the city as a lesser partner in the cleanup process. As a local government, the city expected DOE to work with it on a government-to-government basis, which would serve to acknowledge the important role the city has in protecting the health, safety and welfare of its residents, a role that individuals and community groups — often referred to as stakeholders — did not equally share with the city. (Local DOE officials reaffirmed the city's assessment when they commented that DOE does not have a contractual relationship with the city but worked with them as a "stakeholder.")

Exacerbating this strained relationship is the fact that with completion of remediation activities approaching, DOE moved the Ohio Field Office, which manages Mound, from Miamisburg to Cincinnati, a distance of approximately 40 miles. Coupled with the continuing loss of DOE personnel, this shift eroded the dialogue, leaving the city to believe that there was no one working in the Ohio Field Office with whom it could partner because a true partnership requires, among other things, having DOE and regulator personnel readily available for in-person meetings.

Likewise, as one community member expressed, when DOE and regulator personnel live within the community, they can better understand the issues community members raise because the affected community is their community as well; conversely, the greater the distance one lives from the affected community, the more such concerns run the risk of being experienced as theoretical concerns.

4. Resolving Conflicts to Achieve Goals

As noted elsewhere in this report, ECA questions whether the Oak Ridge community and DOE have tested the strength of their working relationship. At Mound the answer is a resounding "yes." While the parties have developed various site-specific mechanisms to address issues such as building transfer and remediation of PRS 66, two challenges stand out: the dispute over the OU1 landfill and DOE's attempt to backtrack on its funding commitments to MMCIC. It took congressional intervention to resolve both disputes.

These disputes were important for a number of reasons — they raised questions of trust, they demonstrated the role of Congress in resolving disputes and they illustrated how cleanup goals were refined through the process. Most importantly, these disputes raised the pivotal question of the goals of the cleanup: was the cleanup geared toward (1) reducing risk and thus DOE's costs and liabilities, or (2) reducing risk and DOE's costs and liabilities and returning the site to a beneficial use, which meant reuse of Mound. It seems folly to ask this question at the eleventh hour, but looking at the situation objectively, ECA is not convinced that DOE and the community still agree on the legal and policy bases for establishing an industrial use cleanup standard and for providing MMCIC with the financial means to help transition the site. Without

this shared vision and understanding, the fundamental goal of remediating the site is drawn into question.

Cleanup Level Defined: Unresolved Issues Surrounding the OU1 Landfill

The 1998 sales contract between DOE and MMCIC, which spelled out the terms and conditions for transferring Mound to MMCIC for reindustrialization, included the following provision: "the Premises will be cleaned by the Seller [DOE] to an 'industrial use' standard."[50] DOE and MMCIC and the city butted heads over what steps DOE would take to meet the intent and spirit of this provision.

DOE argued this provision meant a cleanup that meets EPA standards for industrial use. Meeting this standard, DOE argued, does not necessitate digging up the OU1 landfill, as there are other means it could employ to meet this regulatory requirement, including restricting access to the area and treating effluent. DOE further argued that meeting this standard would be different from what MMCIC was advocating, namely cleanup to allow for industrial reuse. As noted earlier in this chapter under "Risk Management and Risk Communication," the city and MMCIC were concerned about potential impacts to human health as well as any financial impacts resulting from potential tenants' perceived risks of locating a business near a hazardous waste landfill.

Numerous factors complicated resolution of this dispute:

- Disagreement over the language and intent of the sales contract between DOE and MMCIC;
- Questions over whether MMCIC's concerns are based on actual risk or on perceptions of risk;
- Questions regarding what it means for the cleanup project to be a success;
- DOE's inconsistent decisions to excavate PRS 66 but refusal to excavate OU1;
- The decision to not fold the OU1 ROD into Mound 2000;[51] and
- Not defining earlier in the process what it means to clean up a site to allow for reindustrialization.

Fundamentally, the primary mistake the parties made was failing to address the disputed question of the OU1 landfill earlier in the process. As one party noted, everyone knew the issue was looming but DOE relied on the 1995 OU1 ROD and therefore did not begin the dialogue necessary to resolve the dispute. Yet, as one state official noted, leaving OU1 in place would have complicated reuse efforts and if reuse was not successful then the cleanup would not be considered successful.

[50] "Sales Contract by and between the United States Department of Energy and the Miamisburg Mound Community Improvement Corporation," effective January 23, 1998, page 8.

[51] When Mound 2000 was approved, a ROD that defined the remediation goal as treatment of groundwater — and not excavation of the landfill — already had been issued for OU1, so the landfill remained beyond the scope of Mound 2000. For that reason the cleanup contract with CH2M Hill provides that the landfill should be cleaned in accordance with the OU1 ROD.

There was a pivotal issue at play that is discussed more thoroughly in the recommendations: all cleanup decisions must be technically sound and comply with all relevant and applicable regulations, but there are important policy considerations that DOE must take into account in order to successfully partner with the community to resolve difficult remediation issues.

Another conclusion reached from speaking with officials familiar with the cleanup process is simply: Do not take "no" for an answer. This was especially true when officials believed that their view was the right one for their community. Ultimately at Mound, local officials persevered with their contention that the OU1 landfill should be excavated. By working with their elected leaders in Washington, they forced a change in DOE policy that will see the completion of landfill excavation in 2007.

Contract versus MOU — DOE's "Agreements"

One conflict that likely could have been avoided was related to DOE's obligation to MMCIC. DOE and Congress took a number of steps to support MMCIC's reindustrialization efforts. As noted earlier in this report, Congress in 1994 authorized DOE to convey property at no cost to local communities for the redevelopment and reuse of the former nuclear facilities. In addition, at the time the Mound sales contract was signed in 1998, DOE agreed to pay MMCIC to further support its efforts. However, unlike in contracts at other DOE facilities, the department would not include this provision in the sales contract. DOE instead signed a memorandum of understanding (MOU) related to the conveyance of those funds.

A few years later with the change in the administration, new officials in the DOE Office of Worker and Community Transition informed the city and MMCIC that DOE would not pay MMCIC the amounts that were agreed upon in the MOU until MMCIC satisfied certain conditions that DOE believed were part of the agreement. MMCIC disagreed with how its obligations to the community were characterized by the department. For several years MMCIC, the city and DOE argued over the funds. After an aggressive congressional lobbying effort by the city and MMCIC, the parties reached an agreement.

CASE STUDY: ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE

The Rocky Flats cleanup presents an opportunity to study and evaluate the largest and most complex environmental cleanup of a DOE facility to date. The future use of the site stands in contrast to Mound and the Oak Ridge Reservation as the entire site will be retained by the federal government, with jurisdiction being shared between DOE and the Department of the Interior.

Rocky Flats, 1983

Rocky Flats, 2007

The decision to close Rocky Flats was met with mixed opinions — those opposed to the development of nuclear weapons strongly supported the decision while supporters of the site's

role in the Cold War were deeply concerned about the loss of mission and corresponding loss of jobs. Divisions within the community did not end with the decision to close the site. The local community was similarly split on what constitutes a safe and protective cleanup and on the appropriate future use.

Like Mound and Oak Ridge, the process the parties followed to engage the community and address and resolve complex technical and policy issues was tailored to site-specific needs. It included innovative ideas such as providing the community with predecisional drafts of cleanups documents at the same time the document was provided by DOE to the EPA and state regulator. The site manager also met regularly with the community where any issue could be raised.

Background — History of Rocky Flats and Key Issues

Located 16 miles northwest of Denver in Jefferson County, Rocky Flats served as the primary nuclear weapons pit (or trigger) production facility. Over time as the Cold War escalated, workers also engaged in a number of other classified operations including production of depleted uranium tank armor and still-secret special work orders.

Infinity Room

Forty years of production resulted in widespread contamination within the buildings and throughout the 6,400-acre site, with the greatest concentrations (and thus hazards) being within the 384-acre industrial area. Site operations and fires also contaminated off-site lands and off-site water supplies. By the early 1990s, Rocky Flats was home to five of the 10 most dangerous buildings in the DOE complex, including Building 771, the most dangerous and site of a 1957 fire. The Building 771 fire was notable because it breached a filter system and released a contaminated smoke plume. This fire led to improvements at the site that helped contain a fire and smoke at Building 776 in 1969, preventing a release into the environment.

Rocky Flats also was home to large protests starting in the late 1970s into the 1980s. In April 1978, anti-nuclear activists from throughout the United States descended on Rocky Flats and began a series of protests that included occupying the railroad tracks leading into the site for nine months. In April 1979, 300 people were arrested protesting at Rocky Flats; and in August, 16,000 workers and their supporters demonstrated in support of the site. October 15, 1983, marked the culmination of the protests when community members, including many children, nearly encircled the 17-mile perimeter of the plant.

Suspicions of environmental violations at the site led to a June 1989 raid — dubbed "Operation Desert Glow" — by the Federal Bureau of Investigation and the Environmental Protection Agency, the first time federal government agencies raided another agency. That year the site was placed on the National Priorities List (NPL), or Superfund list, by the Environmental Protection Agency (EPA). As a result of evidence gathered by the FBI and EPA, Rockwell International, the Rocky Flats contractor at the time, was fined $18.5 million, the largest environmental fine in United States history as of that date.

While production ceased immediately after the raid, DOE did not officially announce an end to the nuclear weapons production mission at the site until 1993. At that point, DOE shifted its focus to "activities necessary to stabilize and consolidate radioactive and hazardous materials and ship them off site, deactivate and decommission facilities, clean up contaminated sites and disposition more than 500,000 pieces of property and millions of classified documents."[52]

After many years of discussion, negotiation and coordination among DOE, the state of Colorado, Congress and the affected communities, the parties agreed that jurisdiction of vast portions of the site would be turned over to the U.S. Fish and Wildlife Service and protected as a national wildlife refuge upon the completion of cleanup activities. This agreement was affirmed by federal legislation in 2001. This future use determination required all parties to identify and adopt appropriate cleanup levels and land use controls to guarantee cleanup remedies that protect the environment and human health and safety.

Timeline

1951 — On March 23rd, *The Denver Post* reports "There Is Good News Today: U.S. To Build $45 Million A-Plant Near Denver." Dow Chemical becomes the initial operating contractor.

1957 — A major fire occurs in Building 771, decades later deemed the most dangerous building in the complex. Community is not told about fire until 1970 despite the spread of contamination to off-site lands.

PU metal button inside glove box

1969 — A major fire in a glove box in Building 776 — later declared the second-most dangerous building in the complex — results in costliest industrial accident in the nation at the time; cleanup took two years.

1970 — After independent scientists find plutonium on off-site lands, the Atomic Energy Commission (AEC) announces the contamination is the result of the 1957 fire, the first the community had heard about the fire, and leaking waste drums containing radioactive and hazardous materials.

1972 — DOE determines it needs to expand the buffer zone around the production buildings; Congress agrees to spend $6 million to buy an additional 4,600 acres.

[52] "Rocky Flats History" by Patricia Buffer, July 2003, http://192.149.55.183/HAER/RockyFlats_HistoryBook_rev2.pdf.

Politics of Cleanup

1973 The greatest amounts of tritium are released to surface water of Walnut Creek in April, according to the Colorado Department of Public Health and Environment (CDPHE).

1974 Gov. Richard Lamm and U.S. Rep. Timothy Wirth establish the Lamm-Wirth Task Force on Rocky Flats, which was designed to make recommendations for the future of the site; task force includes site workers and anti-nuclear activists.

1975 Rockwell International replaces Dow Chemical as managing contractor.

1978 In April, large-scale protests begin at Rocky Flats when 5,000 people turn out for a rally at the west gate; protestors begin camping on railroad tracks leading into the plant site and occupy the tracks until January 1979 when plans were made for a large-scale protest.

1979 In April, 9,000 protestors rally outside of Rocky Flats; 300 are arrested, including Pentagon Papers whistle-blower Daniel Ellsberg; in August the United Steelworkers of America, the main site union, holds a counter demonstration that draws 16,000 supporters.

1983 On October 15, 15,000 protestors nearly encircle the 17-mile perimeter of the Rocky Flats site.

1986 DOE, the Colorado Department of Health, and the Environmental Protection Agency sign an agreement to allow regulation of radioactive/hazardous waste at Rocky Flats.

1987 Rocky Flats Environmental Monitoring Council formed, a community oversight organization. It is replaced in 1993 by the Rocky Flats Citizens Advisory Board.

1989 On June 6, as part of Operation Desert Glow, 80 armed federal agents raid the site to investigate allegations of environmental violations; contractor Rockwell International later agrees to pay an $18.5 million fine, the largest in the nation as of that date.

1990 EG&G takes over operation of Rocky Flats from Rockwell International; around this time, the environmental cleanup of the site was estimated to cost more than $36 billion and take 65 years to complete.

1991 An interagency agreement among DOE, the Colorado Department of Health and EPA is signed, outlining multiyear schedules for environmental restoration studies and remediation activities fully integrated with anticipated National Environmental Policy Act documentation requirements. The approach stymies progress, leading the parties five years later to sign the Rocky Flats Cleanup Agreement (RFCA), which provides the regulatory basis to accelerate cleanup.

1992 In the State of the Union address, President George H.W. Bush announces the end of the W-88 warhead program, effectively ending the mission at Rocky Flats. DOE estimates the elimination of 4,000 Rocky Flats jobs by 1996 with 4,500 workers to remain on site for a $1 billion cleanup.

1993 First shipment of uncontaminated enriched uranium sent to Oak Ridge, Tenn.

1993 Gov. Roy Romer and Rep. David Skaggs form a 29-member Citizens Advisory Board to provide advice on technical and policy decisions related to cleanup and waste management activities at Rocky Flats. The board eventually came under the authority of the EM SSAB charter.

1994 Final shipment of approximately 235,000 pounds of depleted uranium leaves site for use at other DOE facilities.

1995 In July, Kaiser-Hill LLC signs contract to clean up site with a target completion date of 2010 for an estimated cost of $7.3 billion.

1995 In July, the Future Site Use Working Group issues a comprehensive report on the future use of the site, which includes protecting the 6,000-acre buffer zone as open space, but leaving open the questions regarding the future use of the 384-acre core production area (the Industrial Area). It recommended that the site be cleaned up to average background levels when it would be technologically and fiscally feasible. The recommendations are adopted by two other local groups, the Rocky Flats Citizens Advisory Board and Rocky Flats Local Impacts Initiative.

1996 The Rocky Flats Cleanup Agreement is signed by DOE, CDPHE and EPA. The agreement set the regulatory procedures and standards for site cleanup levels.

1997 DOE and the regulatory agencies agree to no on-site burial of Rocky Flats waste; the 1996 regulatory agreement allows for and presumes on-site burial of waste. Also this year, Energy Secretary Federico Peña announces that Rocky Flats will be the first large-scale accelerated closure pilot project for the DOE weapons complex.

1998 The Industrial Area Transition Task Force issues a report listing six alternatives for use of the Industrial Area. Final determinations about use of the Industrial Area are made in 2001 with the passage of the Rocky Flats National Wildlife Refuge Act of 2001.

1999 In February, seven surrounding municipalities form the Rocky Flats Coalition of Local Governments (RFCLOG) to give affected municipalities greater leverage over cleanup and future use decisions.

1999 The first shipment of transuranic waste is sent to the Waste Isolation Pilot Plant near Carlsbad, New Mexico.

2000 In January, DOE and Kaiser-Hill sign the first closure contract in the complex, a $4 billion accelerated cleanup contract that sets a target completion date of December 15, 2006. The contract specifies DOE's responsibilities such as opening up receiver sites and providing waste packaging containers.

2001	The General Accounting Office issues a report estimating the chances of Kaiser-Hill meeting its target closure date of December 15, 2006, at 15 percent; a 1999 GAO report calculated the chances at 1 percent.
2001	Rocky Flats National Wildlife Refuge Act signed into law, as part of the 2002 National Defense Authorization Act (P.L. 107-107); directs protection of the entire site as national wildlife refuge following completion of cleanup activities and expressly prohibits reindustrialization of the site or local government annexation of the property.
2003	Cleanup level modification in RFCA approved by CDPHE and EPA.
2004	Building 771 is demolished.
2005	On October 13, Kaiser-Hill announces physical completion of Rocky Flats cleanup, more than 14 months ahead of schedule.

Community Priorities and Challenges

More than 2 million people live within 50 miles of Rocky Flats. Twelve municipalities were directly affected by activities at the site, including the cities of Arvada, Boulder, Broomfield and Westminster; Jefferson and Boulder counties; and the Town of Superior.[53]

Infinity Room

While all of the communities wanted input on and influence over the decision making and planning at the site, the communities had different interests in its future. Some communities bordering the site were concerned with the economic impacts of closure and redevelopment. Other communities near the site were concerned with the potential to further contaminate their water source. Still others were involved simply because the site was in their general vicinity and their leaders thought that site issues could affect their residents. Nevertheless, cleanup and the protection of human health and safety were common concerns for all those involved.

The communities surrounding Rocky Flats did not rely on the site as a large source of economic stability, unlike their counterparts at the Mound and Oak Ridge sites. While many local workers would lose their jobs as cleanup activities progressed at the site, the diverse economic base of the area helped to mitigate the negative economic impacts of the closure of the site and the completion of cleanup.

The fact that no community was a company town served as an advantage in determining the future use of the site. The fates of the communities were not tied to continuing missions at

[53] "The Role of Local Governments in Long-Term Stewardship at DOE Facilities", Environmental Law Institute and Energy Communities Alliance, 2001.

the site or future reindustrialization and development at the site. Jefferson County and the cities of Arvada and Broomfield hosted a significant number of site workers and would have benefited most from any industrial reuse or development at the site; however, the communities have been economically stable without the support of the site. Despite mutual concerns regarding employment, Arvada and Broomfield initially had differing opinions on the end use of the site. Early in the negotiation process Broomfield, along the other five municipalities adjacent to Rocky Flats, favored protecting the site as open space; Arvada, in contrast, supported a combination of economic reuse and protecting the site as open space. There also was an issue of worker attitude. Early in the cleanup process, workers viewed cleanup activities as a long-term program and source of job security; DOE and Kaiser-Hill were able to change those attitudes and convinced workers to view site cleanup as a project with milestones and goals that must be met and attained. In the end, workers embraced the accelerated cleanup plan and the local governments unanimously supported designating Rocky Flats as a national wildlife refuge.

The Rocky Flats site was not universally popular in the Denver metropolitan area. Many community members viewed the site as a reminder of our nation's nuclear weapons legacy. As such, it was a magnet for anti-nuclear protestors. Some community members viewed the site as a lurking danger that posed a constant threat to their health and safety. This perception of Rocky Flats, combined with the economic independence of the area, influenced the determination of the end use, cleanup levels and remedy selections at the site for DOE and cleanup contractor Kaiser-Hill.

903 Pad demolition inside tent, 2003

The Rocky Flats Citizens Advisory Board (RFCAB), which was part of the EM SSAB, remained

split on key issues surrounding the cleanup, never abandoning the long-standing goal of cleaning up the site to background when technology allows. Nevertheless, some RFCAB members found the final cleanup levels to be technically justifiable and believed it met a number of community goals; others, however, rejected the notion of basing cleanups on risk, and actively pressed for cleanup to background levels. The Rocky Mountain Peace and Justice Center, a community organization that was borne out of the protests at Rocky Flats in the 1970s and 1980s, falls into the latter camp. These differing opinions influenced not only how communities addressed these issues, but influenced the ultimate determinations of cleanup levels and the future use of the site.

The cleanup, which began in earnest in the mid-1990s, focused on five principal activities:

1. Stabilizing materials
2. Decontaminating and demolishing buildings (800 structures)
3. Shipping all waste to off-site receiver sites
4. Remediating contaminated soils and contaminated groundwater, and protecting surface water quality
5. Transitioning Rocky Flats to the U.S. Fish and Wildlife Service for protection as a National Wildlife Refuge

The overarching goals for the cleanup project included:

1. Ensuring all waters leaving the site are available for any and all uses
2. Demolishing all buildings
3. Remediating soils to agreed-upon cleanup levels
4. Shipping all wastes to off-site receiver locations
5. Ensuring worker safety
6. Developing and implementing a comprehensive post-closure stewardship plan
7. Turning Rocky Flats into a National Wildlife Refuge

Detailed Discussion of Findings

1. Developing Goals and Identifying Future Use of the Site

In 1995, after an intensive 12 months of meetings, the members of the Future Site Use Working Group (FSUWG), a group of stakeholders working under a DOE grant and representing economic interests, environmental interests, peace and health interests, site workers, local landowners, and local governments, issued a comprehensive report on the future use of the site. The FSUWG concluded that the majority of the roughly 6,000-acre buffer zone should be protected as open space; the participants, however, were unable to reach consensus on the 384-acre core production area (called the “Industrial Area”) and thus concluded it should be available for a range of future uses from industrial reuse to open space. This vision, which DOE did not formally accept, nevertheless became the foundation for the 1996 regulatory agreement that guided the cleanup project.

In 1998, the Rocky Flats Local Impacts Initiative, the DOE-funded community reuse organization for Rocky Flats, instituted a second community process geared toward resolving open questions regarding the future use of the Industrial Area. That process (the "Task Force") concluded all but two of the production buildings were unusable and should be demolished. Still, the Task Force was unable to resolve questions regarding the future use of the Industrial Area, so what to do with the Industrial Area remained an open question.

Finally, starting in 1999, Congress began discussing legislation that would determine the future use of Rocky Flats. After a long and difficult public dialogue, in December 2001 Congress passed and President George W. Bush signed "The Rocky Flats National Wildlife Refuge Act of 2001." Under the law Rocky Flats is to be transferred to the U.S. Fish and Wildlife Service to be managed as a wildlife refuge, with certain lands beings retained by DOE to manage residual contamination. Among other provisions, the legislation mandates continued federal ownership, prohibits redevelopment of Rocky Flats (thereby solving the question of what to do with the Industrial Area) and prohibits annexation by any local government. The communities supported these outcomes of the law.

Early on in the legislative process some local governments and community members resisted Congress's attempts to designate Rocky Flats as a wildlife refuge, as such a designation would have eliminated all opportunity for redevelopment of the site. In time, though, through the active and cooperative participation of the Rocky Flats Coalition of Local Governments, the seven municipal governments that surround Rocky Flats, all issues were resolved and the governments unanimously supported the refuge bill.

The RFCA set the regulatory procedures and standards for cleanup levels at the site. By supporting the open space (and then national wildlife refuge) end-use vision, the agreement became one of the keys to successful cleanup. The agreement, which is the federal facilities compliance agreement, was signed by DOE, CDPHE and EPA in 1996. Enforcement provisions were altered three years later and critical cleanup levels were revised in 2003. The RFCA brings together the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Resource Conservation and Recovery Act (RCRA) and the Colorado Hazardous Waste Act (CHWA). The RFCA also vested CDPHE as the lead cleanup regulator for the industrial area (the 384-acre area in which a majority of the weapons production was done) and EPA the lead regulator for the 6,000-acre buffer zone surrounding the industrial area.

2. Accomplishing Cleanup: Focusing on and Refining Goals Throughout the Cleanup Process

During RFCA negotiations in 1995, DOE hired Kaiser-Hill as the site cleanup contractor. Kaiser-Hill inherited a "dysfunctional" site where environmental conditions were outside of regulatory compliance, cleanup was behind schedule, cleanup workers lacked a sense of urgency and there was no vision for the future of the site. DOE, CDPHE, EPA and Kaiser-Hill developed more efficient mechanisms for accelerating cleanup at the site while observing compliance with federal and state regulatory guidelines. The accelerated cleanup plans caught the attention of congressional appropriators and, by 1998, Congress committed steady funding for the project until its completion. With an agreed-upon end use, compliance documents in place and dedicated funding, it was up to DOE, CDPHE, EPA and Kaiser-Hill to determine the cleanup

remedies to be used to accomplish the end-use vision. Determining those cleanup remedies was a continuous process that involved consultation with the public and evolving cleanup strategies. Remedy decisions were made on case-by-case basis, which included applying lessons learned from work already completed at the site.

There are two keys to the accelerated cleanup of Rocky Flats: the new "accelerated cleanup" contract, and the dedicated and steady federal funding stream for the project.

Accelerated Cleanup Contract

Kaiser-Hill joined the Rocky Flats team just as DOE, the state and EPA negotiated the first RFCA in 1995. The first cleanup contract, signed in 1996, was a $7.3 billion performance-based deal that set 2010 as the completion date. The accelerated cleanup contract was negotiated five years later in 2000. As at the Mound and Oak Ridge sites, the accelerated contract brought new life to cleanup activities. The new contract was an incentive-based deal that linked schedule and cost performance, with a much greater emphasis on the contractor finishing under cost. This contract also outlined, in great detail, DOE's and Kaiser-Hill's respective responsibilities in the cleanup process.

750 Pad

This latter issue is particularly important. By identifying the federal government's responsibilities under the contracts (e.g., providing trucks to ship waste to other states for long-term storage, securing waste disposal permits and providing annual funding) and Kaiser-Hill's responsibilities (e.g., cleaning and demolishing buildings, and digging up soils and shipping them to off-site locations for burial) all parties could know who was responsible for which tasks. As needed, community members and others could raise issues with the appropriate party, bringing pressure as the situation warranted.

Kaiser-Hill was given an unprecedented amount of flexibility when planning and executing accelerated cleanup projects at the site. As the lead regulator for the industrial area, CDPHE was instrumental in giving Kaiser-Hill the ability to prioritize cleanup activities and use innovative techniques. (EPA also had regulatory oversight at Rocky Flats.) RFCA also eliminated the need for correction action decisions (CADs) or records of decisions (RODs) for individual projects. CDPHE streamlined the approval process for projects of a similar nature. For example, a standard operating procedure was created for the removal of glove boxes. The procedure was applied to glove boxes in all of the site facilities. This approach allowed the contractor to notify CDPHE of the new project, continue working and remain on schedule without waiting for new approval to proceed. The approach also allowed CDPHE to continually review the contractor's work plans and suspend operations if documents or a visit to site revealed violations. The accelerated approval process did not interfere with the ability of CDPHE to monitor cleanup activities and protect the safety and health of the workers and the members of the community.

The accelerated cleanup contract did not come without concerns. When DOE and Kaiser-Hill signed the closure contract, DOE, the regulatory agencies, local governments and others within the local community were vigorously debating revised cleanup levels for the site. While all parties recognized the then-current cleanup levels would be revised, DOE and Kaiser-Hill nevertheless signed a contract that formalized the same cleanup levels that would change. Many community members viewed DOE's decision to adopt, as a contractual matter, cleanup levels that the community universally opposed as an attempt to undermine the active dialogue regarding revised cleanup levels. DOE agreed to keep negotiating revisions to the cleanup levels, but with great pressure from Kaiser-Hill and tepid support from Congress and local governments, the department tightly bound the conversation. DOE demanded that any changes to the regulatory agreement could not cost more than the anticipated cost of contract completion as defined in the new closure contract. The net result was that the closure contract limited discussions regarding revisions to the regulatory agreement, a sharp contrast to the situation at Mound where the cleanup contract reflected the regulatory agreement.

Still, it was argued by some that had DOE and Kaiser-Hill not signed the 2000 closure contract and thus constrained the discussion, it is possible — even likely — that no conversation would have taken place at all. DOE was not in a position, and may never have been in a position, to entertain a completely unrestrained dialogue.

Additionally, communities, regulators and Congress worried that accelerating cleanup would encourage the contractor to cut corners in order to stay on schedule and earn the maximum incentive fee for the early completion of cleanup activities. Because workers essentially were working themselves out of a job as they completed cleanup projects, there also were concerns that the contractor was receiving large incentives as workers were put out of a job.

Funding

With the new accelerated cleanup contract and project flexibility in place, Kaiser-Hill turned its focus to funding needs. Kaiser-Hill presented DOE and Congress with a plan and a budget that would shave decades off of the projected cleanup completion date. This approach caught the attention of congressional appropriators who in 1998 committed to provide stable cleanup funding for the life of the project.

Along with stable funding, DOE, EPA and CDPHE eliminated budget categories that specified how much money could be used for different cleanup activities at the site. This agreement gave Kaiser-Hill the ability to shift money within the site as it moved from project to project. When Kaiser-Hill and DOE previously were required to present a budget and work plan for every fiscal year in order to receive funding, it limited the work that could be done at the site. Once the funding was approved and earmarked for specific activities it had to be used for those activities. For example, if $50 million was allotted for the demolition and decontamination of a certain number of buildings in 1998, Kaiser-Hill had to use the money as prescribed, even if new site conditions were uncovered. Once Kaiser-Hill was given flexible funding, it was able to reprioritize projects at the site in order to work in a more efficient manner and keep cleanup on schedule.

Politics of Cleanup

The parties also had to resolve a pair of major cleanup hurdles in order to complete cleanup.

Major Cleanup Hurdles

As cleanup progressed, it became increasingly clear the enormous pressure that DOE and Congress were exerting on themselves and the community to accomplish the cleanup in a timely and cost-effective manner. Both needed to provide that a cleanup project could be accomplished, and Rocky Flats would become the standard-bearer. There often was great resistance from DOE and Congress to change the cleanup levels if such changes could adversely affect the schedule and cost to complete cleanup.

Nowhere was this tension more evident than when the 1996 regulatory soil cleanup levels were renegotiated. The process to revise the cleanup levels took several years to resolve and was described as "long and painful" by more than one individual interviewed. The point of contention was whether DOE was removing enough of the contaminated soil from the site. The communities took issue with the levels, claiming that they were not protective enough. In response DOE, EPA, CDPHE and Kaiser-Hill approached the communities and sought to strike a compromise that would change the soil action levels but stay within the target cost and completion date of the contract. In the end, the revised cleanup levels DOE, EPA and CDPHE adopted in 2003 met all applicable regulations, and in many cases went beyond the regulatory minimum compliance levels as the parties sought to balance local governments' interests (increasing the cleanup levels for surface soils and protecting water leaving the site), DOE's interests (not altering the anticipated cost of the contract), and Kaiser-Hill's interests (keeping on track for a 2006 closure).

Establishing the cleanup levels was a technical and political process. Given that the new levels were technically sound and generally very conservative, the final determinations about what levels were acceptable boiled down to politics — and with the support of the local governments, led by the Rocky Flats Coalition of Local Governments, and support of Colorado's congressional delegation, the political support was there to adopt the new cleanup levels, levels that fundamentally were a negotiated settlement between DOE and the coalition.

Building 779 demolition

The second significant hurdle in the cleanup process was the disposition of special nuclear materials (including pits, classified parts, plutonium metals and oxides, and plutonium

residues) and tens of thousands of truckloads of radioactive and hazardous waste. After the 1989 raid and abrupt stoppage of nuclear manufacturing, large amounts of plutonium and other radioactive materials remained on-site, much of it stored improperly.

DOE was unsure whether it would be able to solve all of the technical and political hurdles necessary to remove all of the wastes from the site.[54] So, without a political imperative to dispose of all wastes at off-site locations, the 1996 cleanup agreement allowed for on-site disposal of wastes. The local governments objected and pressed DOE and the regulatory agencies to actively seek off-site disposal options for all of the waste streams. Over the objections of local anti-nuclear activists who pressed for on-site storage until the waste could be safely neutralized, in September 1997, Al Alm, DOE's Assistant Secretary for Environmental Management, committed to no on-site disposal of wastes. Achieving this goal proved extremely difficult. It required the parties to work with other states to create transportation and storage agreements, and to develop shipping routes and address related issues such as emergency response.

DOE faced the greatest challenge as the agency had to integrate the DOE complex to support the Rocky Flats cleanup. Receiver sites had to be not just identified but they had to be funded and directed by DOE headquarters to provide Rocky Flats shipping and disposal priority. In some cases, Rocky Flats was unable to ship due to canceled programs, conflicting priorities within the DOE complex, or a lack of storage capacity.

These steps, among others, were central to moving materials off site and moving forward with cleanup activities. In the end, waste and special nuclear materials were shipped to 10 sites in nine states: Envirocare (Utah), Hanford (Washington), Idaho National Laboratory, Lawrence Livermore National Laboratory (California), Los Alamos National Laboratory and the Waste Isolation Pilot Plant (New Mexico), Nevada Test Site, Oak Ridge National Laboratory (Tennessee), Pantex Plant (Texas), and Savannah River Site (South Carolina).

3. Engaging the Community: Consultation, Coordination and Communication

During the decades the site was producing weapons, it was shrouded in secrecy. The surrounding communities understandably distrusted DOE. As it began site cleanup in earnest, the department actively involved the communities in discussions regarding the future of the site and the cleanup plans. DOE began to recognize the advantages of meaningful community participation and sought to develop a relationship based on trust. This process was gradual and the parties worked together to develop an effective communication protocol. Now that cleanup at the site is complete, the communities will continue to monitor activity at the site through the local stakeholder organization (LSO) that will work with DOE and the regulators to ensure the safety of the site and protect the communities.

The communities surrounding Rocky Flats took an active interest in the cleanup and future use plans for the site. Starting in the early 1990s, citizen oversight of the facility was undertaken by the Rocky Flats Citizens Advisory Board (RFCAB), the former Rocky Flats Local Impacts Initiative (RFLII) and its successor, the Rocky Flats Coalition of Local Governments

[54] DOE always planned to move the special nuclear materials to sites with continuing missions.

(RFCLOG), and the Rocky Mountain Peace and Justice Center. These groups had varying membership and functions, but all monitored activities at the site and applied pressure to elected officials, DOE, state regulators, site contractor Kaiser-Hill, as well as to each other.

One of the challenges for DOE was to recognize the goals of the different groups and communities and understand that they held different views. Not all of the groups were equal in the eyes of DOE, and the department, while responding equally to all, directed the bulk of its focus toward those groups and communities that DOE and the regulators believed were interested in working toward a solution, not those who were perceived as being interested in nothing more than impeding the cleanup process. In addition to the formal public comment process, DOE used the RFCAB and RFCLOG for gathering community input on policy and technical issues and gauging public sentiment.

Rocky Flats Citizens Advisory Board

The Rocky Flats Citizens Advisory Board (RFCAB), which was one of the first local boards under the EM SSAB charter in the DOE complex, was established in 1993 by the CDPHE and EPA and funded by DOE. Its mission was to provide independent, community-based recommendations on the cleanup of Rocky Flats.[55] Early in the Rocky Flats cleanup process, RFCAB and RFLII were the two primary means of local government participation in site issues. RFCAB was comprised of 10-25 members representing a diversity of views from the surrounding community. According to RFCAB members, DOE took a hands-off approach, allowing the board to function with a high degree of autonomy. Providing DOE with feedback on proposed technical issues and programs related to the cleanup of the site was the predominant mission of the board. The board completed its mission and disbanded in June 2006.

1969 fire damage of glove box

Rocky Flats Local Impacts Initiative

Formed in 1991, the Rocky Flats Local Impacts Initiative (RFLII) was the DOE-funded Community Reuse Organization (CRO) for the Rocky Flats Site. The group was composed of local elected officials, developers, chambers of commerce, environmental groups, public interest groups, site workers and community members at large. Its mission was to inform the community of the impacts of the site closure and cleanup. Specifically the group was tasked with resolving open questions regarding the future use of the industrial area. The Industrial Area Transition Task Force concluded that most structures in the industrial area were unusable, but did not make a recommendation on what to with the Industrial Area. This group disbanded and was replaced as the CRO by RFCLOG.

Rocky Flats Coalition of Local Governments

[55] "Our Legacy Report to the Community," Rocky Flats Citizens Advisory Board, June 2006, www.rockyflatssc.org/legacy_report.html.

The Rocky Flats Coalition of Local Governments (RFCLOG) was the successor to RFLII. It was comprised exclusively of local elected officials from affected communities. RFCLOG members were Boulder and Jefferson counties, the cities of Arvada, Boulder, Broomfield and Westminster, and the town of Superior. RFCLOG formed from the belief that local governments deserved a seat at the table when DOE, state and federal regulators and the contractor discussed plans for the site including cleanup priorities, future use and stewardship. While local elected officials were active in RFCAB, those officials did not think that the RFCAB sufficiently represented the concerns of the local governments. The coalition also believed that local elected officials were the official voice of the community as they were strictly accountable for the health and safety of their constituents.

A major advantage of RFCLOG was its ability to bring the communities together to resolve their differences so the group could approach decision makers with a unified message. To the extent that the communities could reach agreement, the coalition largely spoke with one voice. This approach enabled the member governments to carry collective clout with DOE, the state, Kaiser-Hill and Congress. From the perspectives of DOE, the state, Kaiser-Hill and Congress, RFCLOG was the "go-to" organization to consult on most site issues. The effective presence of the coalition cut down on redundant presentations to and meetings with individual governments.

RFCLOG decisions required approval by a supermajority of its members. Because the board did not have to reach unanimous decisions, it was able to issue substantive comments on important issues thus becoming a major player in issues regarding the site. Upon joining the coalition, communities retained their right to pursue individual interests outside of the organization. On the rare occasions when communities on the losing side of the supermajority went outside of RFCLOG to lobby Congress and DOE about their concerns, their motives for straying from the coalition position were questioned. In some instances Congress and DOE would work to accommodate requests and concerns; other times communities would be encouraged to continue to work to achieve their goals through the coalition. Acting alone had variable outcomes and served to either bolster the complaints of the community because it took the extra step to go outside of the coalition or it served to marginalize the complaints of the dissenting community because the community was breaking ranks with the group.

Some community members who were involved with issues at the site did not agree that local elected officials deserved special treatment from DOE, and that elevating local elected officials to the same level as the state added an extra player to already complicated negotiations and communications processes. They felt that the RFCAB and the public comment period provided ample opportunity for community members to express their opinions.

RFCLOG served as a valuable tool for local elected officials and their communities. It provided a means that would not have existed if local governments used the RFCAB to work closely with DOE, Congress, the regulators and Kaiser-Hill.

Local Stakeholder Organization

As Rocky Flats transitions from an active cleanup site to a closure site the focus of DOE, regulators and the communities turns to monitoring. Federal government responsibility for the

site will soon shift from the Office of Environmental Management (EM) to the Office of Legacy Management (LM) and community oversight responsibilities have coalesced under the DOE-funded local stakeholder organization (LSO), the Rocky Flats Stewardship Council. The Stewardship Council comprises local elected officials and community members at large. It will continue to work with DOE and the regulators to ensure cleanup remedies at the site remain in place, institutional controls are enforced, the communities are informed of any safety risks, and any new environmental problems are addressed quickly and safely.

LSOs were created by Congress to, among other things, "solicit and encourage public participation in appropriate activities relating to the closure and post-closure operations of the site."[56] The law authorized LSOs in the communities around Rocky Flats, Mound and Fernald.

Examples of Effective Communication

Two examples of effective communication at Rocky Flats dealt with how one group of parties set out to get another group to understand its perspective on a critical cleanup issue.[57]

In the case of demolishing Building 779, DOE, Kaiser-Hill and the regulators realized that they need to engage the community to gain an understanding, and thus acceptance, of why the approach of demolition was being undertaken. The project presented a challenge initially because Building 779 would be the first nuclear production building in the complex to be decommissioned and demolished. In order to open and strengthen the lines of communication between all parties, DOE undertook a number of steps to explain the project, why demolition was appropriate for this building and how this approach would incorporate community concerns, including worker health and safety.

DOE held public meetings to discuss data that showed that the residual contamination left in the building would not pose a health and safety risk during demolition. Some community members still expressed concern that demolition could send contaminants into the air. So DOE went one step further to communicate its belief in the project by opening the building to tours by community residents and the media, thus communicating "in a non-verbal way that this was a decontaminated facility that was safe to enter in street clothes."[58] DOE commissioned independent surveys of the inside structure so that analyses of interior contamination were accurate. As was the common practice at Rocky Flats, the department made expert staff, including the manager of the demolition project, directly available to answer public questions. This direct access to site personnel stands in direct contrast to other sites, where citizens typically had to ask questions through a site's community liaison contact.

Just as DOE developed forums to address its issues, so too did the community. Starting in 1998 with RFLII and continuing through 2004 via the Stewardship Working Group (SWG), the Rocky Flats community hosted an active long-term stewardship dialogue. Discussion centered on three issues: factoring long-term stewardship concerns into remedy selection;

[56] Section 3118 of the Fiscal 2005 National Defense Authorization Act (P.L. 108-375).
[57] "Closure Legacy: From Weapons to Wildlife," U.S. Department of Energy Rocky Flats Project Office, August 2006.
[58] Ibid., page 15-5.

ensuring the regulatory enforceability of long-term stewardship activities; and assuring funds for long-term stewardship.

DOE worked with the community at large to address the enforcement of stewardship requirements. The community has been allowed to comment on early drafts of the post-closure Rocky Flats regulatory agreement. DOE and the regulators discussed in-depth the legal underpinnings of the agreement and the enforcement powers that the state and EPA have during SWG meetings in 2003 and 2004. The post-closure agreement is expected to be completed in late 2006. The community will be allowed to review and comment on the document before it is signed.

DOE has found that assuring funding for long-term stewardship "has been the most problematic"[59] issue related to stewardship. This has been attributed to the lengthy nature of site monitoring and maintenance that is required and the uncertainty of the federal budget cycle. The department has noted that while the issue has not been fully resolved, the establishment of the DOE Office of Legacy Management to take over physical site operations from the Office of Environmental Management seemed to give the Rocky Flats community greater confidence that the department was serious about funding its long-term obligations.

Further, DOE and the community wrote their own documents on how they wanted long-term stewardship concerns addressed at the site. Discussions that led to these documents formed the basis for post-closure activities, which DOE has found quite valuable.

Stewardship discussions yielded mixed results. While many of the cleanup documents included a section on long-term stewardship, DOE and the regulatory agencies disagreed with the community as to the level of analysis that needed to be included in those documents. While these forums were important for reaching an understanding related to long-term stewardship, the forums themselves did not automatically mean that the parties would be able to reach an agreement. Nonetheless, open and public discussions were successful at communicating the needs of all of the affected parties.

4. Resolving Conflicts to Achieve Goals

Initially the conflict resolution process at Rocky Flats was largely non-existent. DOE relied on the "decide, announce and defend" strategy to keep the public informed of issues at the site. DOE did not know how to effectively deal with communities. On many occasions DOE failed to provide information in a timely fashion and failed to communicate the good and the bad news to the community. As the site moved from hosting an active mission to accelerated cleanup, DOE and Kaiser-Hill realized that they would need input and cooperation from the communities in order to resolve conflicts before the complicated cleanup process undermined their goals.

One of the key issues in conflict resolution was the development of a consistent, unified public process. As cleanup progressed and the key players became further removed from the tumultuous beginnings of the Rocky Flats cleanup project, participants seem to remember more good times than bad times. Earlier in this case study we have cited the resolution of conflicts

[59] Ibid., page 15-12.

over the future-use plan for Rocky Flats and the cleanup standard revisions as examples of conflict resolution at the site. These examples provide a snapshot of the conflict resolution process, but in order to fully understand the process, one needs to understand how all parties changed their approaches in order to improve communication and accomplish cleanup.

When the cleanup process began, DOE was an unreliable source of information, accustomed to keeping policies, data and cleanup plans under wraps. And when information was released to the public, DOE used one of two strategies. Either the decision had already been reached and the public was simply being informed of a change in plans, a new initiative, or a problem at the site; or DOE relied on an inconsistent public comment process that left very little time for the review of documents and submission of meaningful comments from the public. These processes frustrated the regulators and the communities and did significant damage to the reputation of the department and the site.

Compounding the problems stemming from an inconsistent public process was the tendency for DOE to hesitate sharing bad news about the site. Frequently, communities would learn of problems at the site from the media, thus putting DOE on the defensive. These factors led to the development of a great distrust of DOE among the communities. Communities were suspicious of the department and the site contractors, which they felt were hiding information about site hazards.

When Kaiser-Hill came on as the site contractor in 1995, it attempted to reverse the negative trend by being accessible to the regulators and the communities. The contractor attended public meetings, provided data and made presentations. This shift toward transparency was time-consuming and sometimes painful for Kaiser-Hill and the department but it opened lines of communication between the regulators and the communities.

The communities also changed their approach to working with the department. Instead of immediately attacking DOE when it released bad news, the community groups sought to meet with DOE, work to understand the root of the problem and its solutions, and attempt to come to a resolution before trying the issue in the court of public opinion. This approach made DOE feel more comfortable releasing the good and the bad information.

As DOE, Kaiser-Hill, CDPHE, EPA and the communities learned to work as a team at the site, they also began to realize that they needed to work as a team when dealing with Congress and DOE headquarters in Washington. All parties involved attempted to deal with the "dirty laundry" on the site level while maintaining a united front when approaching DOE headquarters and Congress with funding and cleanup program issues.

Appendix A
Senate Report Language

Senate Report 108-260

National Defense Authorization Act for Fiscal Year 2005 Report [to Accompany S. 2400] on Authorizing Appropriations for Fiscal Year 2005 for Military Activities of the Department of Defense, for Military Construction, and for Defense Activities of the Department of Energy, to Prescribe Personnel Strengths for Such Fiscal Year for the Armed Forces, and for Other Purposes Together with Additional Views

MAY 11, 2004

SUBTITLE A — NATIONAL SECURITY PROGRAMS AUTHORIZATIONS

Defense site acceleration completion

The committee notes that the fiscal year 2005 budget request for Environmental Management (EM) will be the last full fiscal year authorization and appropriation for cleanup at the Rocky Flats Environmental Technology Site (Rocky Flats), the Fernald Environmental Management Project (Fernald), and the Miamisburg Environmental Management Project Mound Site (Mound). The committee applauds the level of priority and focus DOE and management within the Environmental Management Program have placed on cleaning up these three EM sites decades ahead of the original baseline schedule and at a savings of tens of billions of dollars.

The committee encourages DOE to reach out to the communities at the 2006 closure sites and determine what lessons can be learned to help accelerate cleanup and thereby reduce the safety and health risks at the remaining major EM sites. In 1995, when a few individuals at Rocky Flats, Fernald, and Mound first began discussing closure of these sites as much as 60 years ahead of schedule, there were many more skeptics than believers in the accelerated closure approach. At that time, the contractors were required to merely meet compliance milestones, not to do cleanup. These three sites have proven that by reducing the highest risks first, the risk of exposure to the workers, environment, and communities was reduced, and accelerated cleanup has significantly reduced the life cycle cost.

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Appendix B
Timeline of Major Environmental Laws, Policy Initiatives, and Decisions Affecting Nuclear Facilities and Cleanup Programs

1942 Manhattan Project is formed.

1945 In July the United States explodes the first atomic device at a site near Alamogordo, New Mexico. In August, the United States drops two atomic bombs on Japan, hastening the end of the Pacific Theater portion of World War II.

1946 Atomic Energy Act (P.L. 79-585) is signed. The Atomic Energy Commission (AEC) replaces the Manhattan Project and moves the development of nuclear technology from military to civilian control.

1953 President Dwight Eisenhower gives his "Atoms for Peace" speech, in which he proposes joint international cooperation to develop peaceful applications of nuclear energy. His vision becomes law a year later with the passage of the 1954 Atomic Energy Act (P.L. 83-703).

1955 Atomic Energy Community Act of 1955 (P.L. 84-221) becomes law. The act facilitates establishment of local self-government at Oak Ridge, Tennessee, and Richland, Washington. It also provides for disposal of federally owned property in those communities. The act is amended in 1962 (P.L. 87-719) to add the establishment of Los Alamos County, New Mexico.

1957 International Atomic Energy Agency (IAEA) is formed to promote peaceful use of nuclear energy and to provide international safeguards and an inspection system to ensure nuclear materials are not diverted to military uses.

1968 Nuclear Nonproliferation Treaty (NPT) is signed, calling for halt to spread of nuclear weapons capabilities. As of February 2006, there are 189 parties to the treaty.

1970 The National Environmental Policy Act becomes law, requiring the federal government to review the environmental impact of actions that might significantly affect the environment.

1974 AEC creates Formerly Utilized Sites Remedial Action Program (FUSRAP) to identify former Manhattan Project and AEC sites that are privately owned but need remedial action.

1974 The 1974 Energy Reorganization Act eliminates the AEC and creates the Energy Research and Development Administration (ERDA) and Nuclear Regulatory Commission.

1976 The Resource Conservation and Recovery Act (RCRA), which regulates hazardous wastes, becomes law.

1977 The U.S. Department of Energy (DOE) replaces ERDA and consolidates federal energy programs and activities.

1978 The 1978 Uranium Mill Tailings Radiation Control Act directs DOE to stabilize and control uranium mill tailings and inactive sites and nearby properties. DOE forms Uranium Mill Tailings Remedial Action (UMTRA) Program to manage these sites.

1980 The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) becomes law, providing for broad federal authority to respond to releases or threatened releases of hazardous substances that may endanger public health or the environment.

1982 Congress passes the 1982 Nuclear Waste Policy Act, which establishes a program of high-level nuclear waste disposal. President Ronald Reagan signs the bill into law January 7, 1983.

1984 A federal court decision (*Legal Environmental Assistance Foundation v. Hodel*) rules that RCRA applies to DOE.

1986 The Superfund Amendments and Reauthorization Act (SARA) was passed. Section 120 provides CERCLA applies to federal facilities.

1987 President Reagan and Soviet President Mikhail Gorbachev sign the Intermediate-Range Nuclear Forces (INF) Treaty eliminating an entire class of intermediate range nuclear and conventional weapons.

1989 The first DOE Five-Year Plan establishes 2019 as the goal for completing cleanup of weapons production facilities.

1989 DOE forms the Office of Environmental Restoration and Waste Management, shifting its focus from nuclear materials production to environmental cleanup. The office later would be called the Office of Environmental Management (EM).

1992 The Federal Facilities Compliance Act, which requires DOE to prepare site treatment plans for approval by the state in which a cleanup site is located, becomes law.

1995 First Baseline Environmental Management Report (BEMR) is published.

1996 DOE's "Ten-Year Plan" is introduced. The Baseline Environmental Management Report (BEMR), which identifies the timeline for cleaning up DOE facilities, is published.

1998 DOE publishes "Accelerating Cleanup: Paths to Closure", a strategy for accelerating site cleanups. It responds to congressional criticism of the cleanup timelines identified in the BEMR.

1999 EM forms the Office of Long-Term Stewardship to provide overall departmental policy and direction on matters affecting stewardship. In 2003 DOE establishes the Office of Legacy Management, which becomes responsible for post-closure management of most EM sites.

2000 In January, DOE and Kaiser-Hill Company, LLC sign the first closure contract in the DOE complex which sets the goals of closing Rocky Flats by December 15, 2006 at a cost of $4 billion.

2001 Top-to-Bottom Review of EM is announced. Results are published in February 2002 and incorporated in "Closure Planning Guidance" in June 2004.

2001 In October, DOE publishes the "Long-Term Stewardship Study Volume I — Report," which describes and analyzes issues associated with long-term stewardship, including physical controls, institutions, information and other mechanisms to ensure protection of people and the environment.

2002 DOE publishes the "Long-Term Stewardship Planning Guidance for Closure Sites," which provides a rationale and framework for planning long-term stewardship.

2003 DOE issues its policy on use of institutional controls.

2005 In October, the Rocky Flats cleanup project is completed, marking the first decommissioning and remediation of a major nuclear facility in the world.

2006 Contractor Fluor Fernald declares physical completion of cleanup of the 1,050-acre Fernald site in southwest Ohio. Cleanup of the former uranium production plant initially was projected to cost $12.2 billion and take 27 years to complete. According to Fluor Fernald, the final cleanup cost was $4.4 billion and shaved 12 years off that projection.

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Appendix C
Risk Communication

ECA identifies numerous issues in this report, but none are more important or more difficult to address than the omnipresent and differing opinions of risk — and with the question of risk comes the need for risk communication. For that reason we have included the following discussion; in addition, we address this issue in Recommendation #6.

A central commonality among a vast number of the disputes at DOE facilities over the past 10 years, particularly disputes resulting in congressional intervention, concerned differing notions of risk. At Rocky Flats and Mound, the most technically and politically difficult and divisive issues involved the differences between technical and scientific risk, the nature and source of the risk, and the type and extent of risk one is willing to assume. As shown at these sites, for environmental cleanups to proceed the agency charged with cleaning up the site and the agencies regulating the cleanup must agree on numerous issues regarding risk — e.g., what risk level is achievable and politically acceptable, and what level of cleanup will ensure the agreed-to risk meets regulatory requirements. For cleanups to garner the support of the local governments and other community members surrounding the site, the parties must agree on technical risks as well as perceptions of risk — e.g., will the community accept the given risk and can the risk that results from contamination being left at the facility support the future use?

Communicating technical risk and risk communication are not necessarily synonymous. Trying to ferret out the root cause of the dispute at Mound over the remedial goals for the OU1 landfill, for instance, is a complex matter. The dispute concerned whether a hazardous waste landfill would negatively affect a private party's attempt to reindustrialize vast portions of the former weapons facility. A DOE official familiar with the challenges at Mound commented that part of the reason the parties became polarized stemmed from the challenges DOE faced in communicating risk. DOE posits that if it had done a better job of communicating the technical and scientific risks resulting from leaving the landfill in place, the parties may not have reached an impasse nor needed Congress to get involved. DOE may be correct. However, if in communicating risk DOE focuses solely on the technical and scientific aspects of risk, then a central part of risk communication would be missed.

In its 2001 report on chemical and radiation risk management,[60] the Environmental Law Institute (ELI) offered two important observations. First, ELI noted, "[i]t is important that the risk management processes include mechanisms to educate communities about risk and provide opportunities to comment on the level of risk they are willing to assume."[61] The authors continued, noting "public involvement in risk management strengthens decisions by ensuring that decisions are based on realistic scenarios … particularly in cases where persistent contaminants will be left on-site under a program of institutional controls."[62]

While these observations seem evident, couched within the broader context of risk communication, implementing ELI's recommendations can take a considerable amount of time and effort in order for DOE and the community to understand and communicate the subtleties and various aspects of risk communication.

Risk communication is difficult. As one DOE manager noted, it cannot be reduced to formulas, rules or checklists. Yet, in order to develop appropriate communication mechanisms one has to understand the fundamentals of risk communication. With that background and understanding of the challenges inherent in risk communication, the following discussion provides an overview of this complex topic.

What Are the Different Types of Risks?

The literature consistently points to the difference between tolerated and non-tolerated risks. Joseph V. Rodricks subdivides these two categories as follows:[63]

Attributes of Tolerated Risks	**Attributes of Non-Tolerated Risks**
Voluntarily assumed	Imposed by others
Personal benefit high	No perceived personal benefits
Scientists agree	Scientists disagree
Not catastrophic	Catastrophic
Natural	Industrial
Hazard not fearsome	Highly dreaded hazard
Common event	Rare event
Equitably distributed	Inequitably distributed

Rodricks notes that "many of the very large risks people face – from smoking, excessive caloric intake and inadequate caloric expenditures, other unhealthy dietary habits, excessive alcohol consumption, automobile accidents – tend to have attributes of the 'tolerated' kind, and public health officials are seriously challenged when they seek ways to reduce these large risks." He continues, "[t]hose required to manage the many thousands of small risks of the 'non-

[60] "Case Study: Chemical and Radiation Environmental Risk Management at the Crossroads," Environmental Law Institute, October 2001.
[61] Ibid., 78.
[62] Ibid.
[63] "Risk Communication," by Joseph V. Rodricks, March 10, 2002, p. 11, http://www.krimmel-soman.com/SITEENVIRON/PAPERS/DOWNLOADS/Risk%20Com.pdf.

tolerated type' face a completely different challenge" and people find "tolerated" risks less threatening than "non-tolerated" risks, regardless of the magnitude of the risk.[64]

Peter Sandman takes a similar approach when discussing risk communication.[65] Sandman notes:

> If there is a central truth of risk communication, this is it: "Watch out!" and "Stop worrying" are both messages that fail more often than they succeed. The natural state of humankind *vis-à-vis* risk is apathy; most people are apathetic about most risks, and it is extremely difficult to get them concerned. But when people are concerned about a risk, it is also extremely difficult to calm them down again.…And the criteria for "effective risk communication" ought to be things like the openness of the process to all viewpoints and the extent to which values are distinguished from scientific claims, rather than whether the audience's opinions, feelings, and actions come to reflect the source's assessment of the risk.…The most serious health hazards in our lives (smoking, excessive fat in the diet, insufficient exercise, driving without a seatbelt, etc.) are typically characterized by under-response — that is, by apathy rather than panic.[66]

Sandman continues by asking the question: What do nuclear power plants, toxic waste dumps, and pesticide residues have in common? In all three cases, the risk is:

1. Coerced rather than voluntary (in home gardens where the risk is voluntary, pesticides are often overused);
2. Industrial rather than natural (natural deposits of heavy metals generate far less concern than the same materials in a Superfund site);
3. Dreaded rather than not dreaded (cancer, radiation, and waste are all powerful stigmata of dread);
4. Unknowable rather than knowable (the experts endlessly debate the risks and only experts can detect where it is);
5. Controlled by others rather than controlled by those at risk (think about the difference between driving a car and riding in an airplane);
6. In the hands of the untrustworthy rather than trustworthy sources (who believes what they are told by nuclear, waste and pesticide industries?); and
7. Managed in ways that are unresponsive rather than responsive (think about secrecy versus openness, courtesy versus discourtesy, compassion versus contempt).[67]

Nevertheless, despite the fact that some are willing to accept certain risks but not others, there still remains a difference between technical/scientific risks and perceptions of risks.

Sandman continues:

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[64] Ibid.
[65] "Risk Communication," by Peter Sandman, published in Encyclopedia of the Environment, ed. Ruth A. Eblen and William R. Eblen (Boston: Houghton Mifflin, 1994), 620-623.
[66] Ibid.
[67]

> [I]t is a mistake to see the two as "objective risk" versus "perceived risk" or as "rational risk response" versus "emotional risk response." For many disputed hazards, in fact, the data on voluntariness, dread, control, trust and the like are more solid, more "objective," than the data on technical risk. These non-technical factors have been studied by social scientists for decades, and their relationship to risk response is well-established. When a risk manager continues to ignore the non-technical components of the situation, and continues to be surprised by the public's "overreaction," it is worth asking just whose behavior is irrational.[68]

How Does One Communicate Risk?

The Agency for Toxic Substances and Disease Registry (ATSDR) notes:

> [t]he public contributes significant information in determining the public health impact of exposure to toxic substances at hazardous waste sites. The public health professional must understand the needs of the community and be able to facilitate dialogue concerning the technical issues of public health risk and the psychological, political, social, and economic needs of the community.[69]

Toward that end, ATSDR believes citizen involvement is necessary for a number of reasons:

1. People are entitled to make decisions about issues that directly affect their lives;
2. Input from the community can help the agency make better decisions;
3. Involvement in the process leads to greater understanding of — and more appropriate reaction to — a particular risk;
4. Those who are affected by a problem bring different variables to the problem-solving equation; and
5. Cooperation increases credibility.

ATSDR identifies concrete steps the parties can take to involve the community in the decision-making process, some of which are included below:

1. Involve the community at the earliest stage possible and clarify the public's role from the outset;
2. Acknowledge situations where the agency can give the community only limited power in decision-making;
3. Find out from the communities what type of involvement they prefer, and respond to the needs of different audiences; and
4. Recognize that people's values and feelings are a legitimate aspect of environmental health issues and that such concerns may convey valuable information.

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[68] Ibid.

[69] "A Primer on Health Risk Communication Principles and Practices," Agency for Toxic Substances and Disease Registry, http://www.atsdr.cdc.gov/HEC/primer.html.

DOE-Rocky Flats personnel understood extremely well that all decisions must be technically sound, but that the majority of the time, the technical answer is not the sole basis for making decisions. Many of the issues and strategies for resolving disputes over risk mirror what ECA has identified in "Chapter 2 — Recommendations: Elements of Creating a Successful Cleanup" as key lessons learned to achieve safe and compliant cleanups. That means, among other steps, risk communication must be broadly based, must be part of a comprehensive communications strategy, and must involve non-technical issues that some may unwisely deem as intangibles. Community values are core to resolving questions about risk; the social and political aspects of risk and risk communication must be appropriately included in the discussions with the community and in the decision-making process.

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Appendix D
Interview Subjects

Oak Ridge, Tennessee — August 23-24, 2005

Interviewers: Seth Kirshenberg, David Abelson and Sara Szynwelski

Department of Energy, Oak Ridge Reservation
Gerald Boyd, Manager
Robert Brown III, Chief Operating Officer
Steve McCracken, Assistant Manager for Environmental Management
Ralph Skinner, Project Manager

Regulatory Agencies
John Owsley, Director, Tennessee Department of Environment and Conservation

Local Governments
David Bradshaw, Mayor, City of Oak Ridge
Jim O'Connor, City Manager, City of Oak Ridge
Jane Miller, Councilmember, City of Oak Ridge
David Mosby, Councilmember, City of Oak Ridge
Leonard Abbatiello, Councilmember, City of Oak Ridge
Tom Beehan, Councilmember, City of Oak Ridge
Amy Fitzgerald, Government/Public Affairs Coordinator, City of Oak Ridge
Rex Lynch, County Executive, Anderson County
Ken Yager, County Executive, Roane County

Community Organizations and Businesses
Susan Gawarecki, Executive Director, Oak Ridge Reservation Local Oversight Committee
Kerry Trammell, Chair, Oak Ridge Site-Specific Advisory Board
Norman Mulvenon, Member, Oak Ridge Site-Specific Advisory Board
Lorene Segal, Member, Oak Ridge Site-Specific Advisory Board
Pete Craven, Member and Past Chair, Community Reuse Organization for East Tennessee

Jenny Freeman, Executive Director, East Tennessee Environmental Business Association
Dennis Morgan, Pro2Serve
Ron Cannon, Pro2Serve

Miamisburg, Ohio — October 5-7, 2005

Interviewers: David Abelson and Sara Szynwelski

Department of Energy, Ohio Field Office
Bob Warther, Manager
Bill Taylor, Deputy Manager
Margaret Marks

Regulatory Agencies
Tom Winston, District Chief, Ohio Environmental Protection Agency
Graham Mitchell, Ohio Environmental Protection Agency
Brian Nickles, Ohio Environmental Protection Agency

Local Government
Richard Church, Mayor, City of Miamisburg
Beth Moore, Assistant Public Works Director, City of Miamisburg
Bob Faulkner, Councilmember, City of Miamisburg

Community Organizations and Businesses
Sharon Cowdrey, Mound Reuse Committee & Miamisburg Environmental Safety and Health
Bernard Kokenge, BRK Association Inc.
Don Kohler, Chair, Miamisburg Mound Community Improvement Corp.
Mike Grauwelman, President, Miamisburg Mound Community Improvement Corp.

Rocky Flats, Colorado — November 1-3, 2005

Interviewers: Seth Kirshenberg, David Abelson, Paul Kalomiris and Sara Szynwelski

Department of Energy, Rocky Flats Field Office
Frazer Lockhart, Manager
Joe Legare, Assistant Manager
John Rampe
Jeremy Karpatkin, Policy Advisor

Regulatory Agencies
Howard Roitman, Director, Colorado Department of Public Health and Environment
Steven Gunderson, Colorado Department of Public Health and Environment
Steve Tarlton, Colorado Department of Public Health and Environment
Dan Miller, Colorado Attorney General's Office

Local Governments

Hank Stovall, Councilmember, City and County of Broomfield
Sam Dixion, Councilmember, City of Westminster
Al Nelson, Rocky Flats Coordinator, City of Westminster
Nanette Neelan, Assistant County Administrator, Jefferson County
Lisa Morzel, Councilmember, City of Boulder
Lorraine Anderson, Councilmember, City of Arvada (interview conducted November 8, 2005)

Community Organizations and Businesses
LeRoy Moore, Rocky Mountain Peace and Justice Center
Gerald DePoorter, Chair, Rocky Flats Citizens Advisory Board
Ken Korkia, Executive Director, Rocky Flats Citizens Advisory Board

Contractor
Dave Shelton, Vice President, Kaiser-Hill

Other Interviews

Jim Woolford, Director, Federal Facilities Restoration and Reuse Office, Environmental Protection Agency (interview conducted November 22, 2006)

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Appendix E
Interview Questions

The following is the master list of questions that helped guide each interview for this report.

Issues to address:

- **Developing goals and identifying the future use of the site**
- **Accomplishing cleanup: focusing on and refining goals throughout the cleanup process**
- **Engaging the community: consultation, coordination and communication**
- **Resolving conflicts to achieve goals**

(Note: "regulators" or "regulatory agencies" refers to both state and federal regulators as appropriate)

Questions that explore the issues:

Section #1 — Background
Goal for questions: To establish the ground for subsequent questions.

1. How long have you been involved in [name of site] issues? What has been your role? Who do you represent?

2. What are and have been the key issues facing the site since DOE announced it was ceasing operations (or in the case of Oak Ridge, downsizing)? What were some of the challenges the community faced?

Section #2 — Developing goals and identifying the future use of the site
Goals for questions: To understand (a) how the community identified its end-state and future use goals, (b) how cleanup goals were initially established, and (c) the role of the community in that process.

1. What are the community's/DOE's/regulators' goals for the cleanup?
    a. Future use goals?
    b. Cleanup levels?
    c. Long-term stewardship?
    d. Other?

2. How did the community/DOE/regulators develop its goals? What was the role of DOE, the regulatory agencies, and other parties during this process?

3. How was a common vision/mission forged in the early stages of the cleanup process?

Additional Questions:
1. What has been the role of the community/DOE/regulators in developing the Site's future use goals? In setting cleanup levels? In establishing cleanup priorities? Does the community believe it has had input in these areas?

2. What is the community's understanding of the role of the regulatory agencies in defining future use goals and in determining cleanup levels?

Section #3 — Accomplishing cleanup: Focusing on and refining goals throughout the cleanup process
Goal for questions: To understand the role of the community in the cleanup process, including how decisions are made and how cleanup goals are refined.

1. What is the role of the community in cleaning up a contaminated site?

2. How have the aforementioned goals identified in section #2 changed and been refined throughout the cleanup process? Why did the changes occur?

3. What is your understanding of how DOE, the regulators, and the community view risk? In the same manner? If not, what is the impact of differing views on risk?

4. How did support for cleanup develop? Is there a difference between supporting the end-state goal(s) and cleaning up the site and transitioning it to a beneficial use versus support

for the cleanup? What is that difference? How does this difference affect community support?

5. How has politics played into the cleanup? Is political support for the cleanup a critical component of the success?

Additional Questions:

1. How does the community view its role and what is your perception of how DOE and the state and federal regulators view their roles and the role of the community?

2. What has been the process DOE, the regulatory agencies, and the community followed to reach agreements on issues?

3. What has been the role of national policy in the cleanup? How have the policies changed and how has such change impacted cleanup?

Section #4 — Engaging the community: Consultation, coordination and communication

Goal for questions: To understand how the community engages on site issues and how that role supports or truncates the Site's mission.

1. What are the specific steps all parties have taken to build a dialogue and to make decisions? Please provide examples.
    a. type and frequency of meetings
    b. nature of dialogue
    c. agency decision-making process
    d. access to information

2. Is the community limited in how it can interact with DOE? (e.g., must an SSAB bring all questions/ requests/etc. to one person who then finds the answer?) Must the community have an official status (e.g., SSAB, CRO, etc)? Does status affect community standing and capacity for partnership?

3. Does the contractor play a role in engaging the community? If yes, what is that role and how important is the role?

4. What groups/governments have been the primary entities involved in the cleanup? Which are DOE funded entities? Which are DOE created or charted entities? Is federal funding critical to the community? If so, why?

5. How are the local governments organized? Is it important for local governments to have an organized forum to work on site issues? If so, why?

6. What is the importance of local government involvement? How does local government involvement compare the role of non-elected officials?

Politics of Cleanup

7. What are the organization's technical and political capabilities to engage on cleanup issues?

Additional Questions:

1. How has the community been involved in cleanup decisions?

2. Does having the right answer, as defined by DOE, affect the community's role and thus standing in the decision-making process? Please explain.

3. Has the community pushed for third-party review of DOE and regulator decisions? What is the role and impact of such reviews?

4. What is the community's perception about the role of the regulators? Does this view affect the community's commitment to partner with the regulators?

5. Do local elected officials have greater standing than non-elected officials? Why or why not?

6. How can the regulatory process help support community involvement and community future use goals? How can the regulatory process truncate these goals

Section #5 — Resolving conflicts to achieve goals

Goal for questions: To understand how disagreements between the community and DOE/regulators are addressed.

1. What have been the primary impediments to success? (e.g., community not bought into change of mission, including loss of jobs; community disagreement on cleanup levels and/or use of risk-based cleanups; inability to solve the tension between accelerating cleanup, lack of full understanding about environmental conditions, and complying with CERCLA/RCRA regulatory requirements) How have these issues been addressed? Did DOE and the community successfully address such issues?

2. Have the community's issues been addressed throughout the cleanup process. Please provide examples of instances where issues have been addressed and instances where they have not been addressed.

3. What types of conflicts have arisen? What have these conflicts entailed and what are the steps parties have taken to resolve the difference? What are the lessons learned, including processes that did not work?

Additional Questions:

What were the challenges during the early years? How were disagreements resolved?

1. How have the various entities at your site built trust? From the community's perspective, does the community trust that DOE is an honest broker? If not how does it affect the decision-making process?

2. Does conflict erode support for the cleanup and resolution build support for the cleanup?

Section #6 — Wrapping up

1. What has been the most important step to ensure cleanup at your site?

2. Has the cleanup been a success to date? Why? Why not? What does it mean to be successful?

3. How does community involvement build support for or erode support of the cleanup?

4. What recommendations do you have for other parties going through a cleanup with a federal agency?

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Photographs

All photographs have been provided by the U.S. Department of Energy, Kaiser Hill and David Abelson.

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Appendix G
Abbreviations Defined

AEC	Atomic Energy Commission
ARARs	applicable or relevant and appropriate requirements
ATSDR	Agency for Toxic Substances and Disease Registry
BEMR	Baseline Environmental Management Report
BWXT	BWX Technologies
CADs	correction action decisions
CDPHE	Colorado Department of Public Health and Environment
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act, as amended, 42 U.S.C. § 9601, et seq.
CHWA	Colorado Hazardous Waste Act
CRO	community reuse organization
CROET	Community Reuse Organization for East Tennessee
DOD	U.S. Department of Defense
DOE	U.S. Department of Energy
ECA	Energy Communities Alliance
EEOICPA	Energy Employee Occupational Illness Compensation Program Act
ELI	Environmental Law Institute
EM	DOE Office of Environmental Management
EM SSAB	Environmental Management site-specific advisory board
EPA	U.S. Environmental Protection Agency
ERDA	Energy Research and Development Administration
ESD	explanation of significant differences
ETTP	East Tennessee Technology Park
EUWG	Oak Ridge End Use Working Group
EWMF	Environmental Waste Management Facility
FACA	Federal Advisory Committee Act
FSUWG	Rocky Flats Future Site Use Working Group
FUSRAP	Formerly Utilized Sites Remedial Action Program
IAEA	International Atomic Energy Agency
ICMA	International City/County Management Association
LM	DOE Office of Legacy Management
LOC	Oak Ridge Local Oversight Committee
LSO	local stakeholder organization

LTS	long-term stewardship
MESH	Miamisburg Environmental Safety and Health
MMCIC	Miamisburg Mound Community Improvement Corp.
MRC	Miamisburg Reuse Committee
NNSA	National Nuclear Security Administration
NRC	Nuclear Regulatory Commission
NPT	Nuclear Nonproliferation Treaty
O&M	operation and maintenance
OHEPA	Ohio Environmental Protection Agency
ORNL	Oak Ridge National Laboratory
ORR	Oak Ridge Reservation
ORSSAB	Oak Ridge Site Specific Advisory Board
OU	operable unit
PCBs	polychlorinated biphenyls
PILT	payments in lieu of taxes
PRS 66	Potential Release Site 66
RCRA	Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976, 42 U.S.C. 6901, et seq.
RFCA	Rocky Flats Cleanup Agreement
RFCAB	Rocky Flats Citizens Advisory Board
RFCLOG	Rocky Flats Coalition of Local Governments
RFLII	Rocky Flats Local Impacts Initiative
RI/FS	remedial investigation/feasibility study
ROD	record of decision
SARA	Superfund Amendments and Reauthorization Act
SWG	Rocky Flats Stewardship Working Group
TDEC	Tennessee Department of Environment and Conservation
TSCA	Toxic Substance Control Act
UMTRA	Uranium Mill Tailings Remedial Action Program