Remediation and Future Land Use: Incorporating Reuse Considerations into Superfund Activities

Michael B. Cook
Melissa Friedland

The U.S. Environmental Protection Agency (US EPA) is placing increased emphasis on the selection and implementation of remedies that accommodate the reasonably anticipated future use of contaminated land. These remedies result in the long-term protection of human health and the environment. Postconstruction reuse of the land can significantly benefit communities in other ways as well. The launching of the Superfund Redevelopment Initiative in 1999 and the Return to Use Initiative in 2004 reflects an evolution in the US EPA’s understanding of what actions can be taken to support the reuse of Superfund sites from discovery through long-term stewardship. Through these initiatives, the US EPA has increased its understanding of site reuse and continues to explore and implement reuse assessment, reuse planning, and other tools effective in integrating reuse considerations with response activities throughout the remedial process. © 2005 Wiley Periodicals, Inc.*

INTRODUCTION

In the past decade, the U.S. Environmental Protection Agency (US EPA) has made a concerted effort to integrate considerations of reuse of cleaned-up land into all aspects of hazardous waste site remediation, from site assessment to long-term stewardship, across all of its cleanup programs. Remedies that accommodate reuse have the potential to ensure long-term protection of human health, the environment, and the remedy by ensuring that the remedy and future use are consistent. In addition, there are significant benefits to communities, including re-energized local economies, increased value of surrounding properties, reduction in urban sprawl, increased property tax revenue for local governments, and enhanced recreational facilities and ecological resources. Successful reuse projects at over 300 Superfund sites across the country provide evidence of the important benefits that can flow from site reuse.

The importance of integrating remediation and reuse at Superfund sites is firmly established in the 1994 National Oil and Hazardous Substances Pollution Contingency Plan (NCP; Office of Emergency and Remedial Response, 1994), which is a set of promulgated rules governing the Superfund process. Under the NCP, land use assumptions are recognized as critical to the baseline risk assessment because they ensure that appropriate exposure pathways are evaluated. The baseline risk assessment provides the basis for taking remedial action at a Superfund site and supports the development of remedial action objectives.

The launching of the Superfund Redevelopment Initiative (SRI) in 1999 reflects the continuing evolution in the US EPA’s recognition of what is necessary to fully implement the Superfund program. The SRI’s goal is to return Superfund sites to protective and beneficial uses so that they can be assets to the surrounding communities. A primary compo-
nent of the SRI’s early efforts was the funding of cooperative agreements to support community-driven reuse planning activities centered on nearby Superfund sites. These SRI pilots were intended to encourage local stakeholders to communicate future land use preferences before the selection and implementation of remedies. More recently, the SRI has focused on reuse at construction-complete and deleted sites so that the US EPA can ensure that the remedies for these sites are protective of the future uses. To support this effort, the SRI is developing tools and resources that inform local communities, developers, and prospective purchasers about opportunities afforded by cleaned-up sites.

EFFECTIVE MEASURES FOR INTEGRATING REUSE INTO REMEDY SELECTION AND DESIGN

Reuse considerations are applicable at every stage of the remedial pipeline, and the SRI continues to explore and implement effective methods for further integrating reuse into the remedial process. Soliciting community input is key to informing remedy decisions. According to the US EPA’s directive, “Land Use in the CERCLA Remedy Selection Process” (1995), the Agency should determine a site’s reasonably anticipated future land uses before issuing the Record of Decision (ROD), which announces the US EPA’s selected remedy for the site. The US EPA’s 1999 guidance for preparing RODs states that the ROD must explain “the role that the community, and other site stakeholders, played in assisting the lead agency to develop these [land use] assumptions” (US EPA, 1999).

The US EPA has two processes for maximizing community involvement in the development of land use assumptions, which the US EPA uses to inform remedy selection: reuse assessments and reuse planning.

What Is a Reuse Assessment?

The US EPA’s guidance, “Reuse Assessments: A Tool to Implement the Land Use Directive,” defines the reuse assessment as part of the remedial process that “involves collecting and evaluating information to develop assumptions about reasonably anticipated future land uses at Superfund sites” (US EPA, 2001a). A reuse assessment assists in developing a more accurate and complete understanding of the current and future uses that might reasonably occur at a Superfund site and helps to inform the US EPA’s remedial decisions. When determining reasonably anticipated future land uses for a

Case Study—Pownal Tannery Superfund Site, Pownal, Vermont

In 2001, the Town of Pownal developed a reuse plan with funding from a Superfund Redevelopment Initiative cooperative agreement (Forcier Aldrich & Associates, 2001). The 2001 report proposes two reuse alternatives for the site that the US EPA took into account when selecting remedial alternatives. The US EPA subsequently issued a reuse assessment for the site that takes much of its information from the town’s 2001 reuse plan and adds potential future uses and considerations for an additional area of the site. The US EPA’s reuse assessment (2002) makes clear that the Agency may have the ability to support and accommodate the town’s redevelopment designs.
site, dialogue with state and tribal officials may contribute useful information about economic development incentive programs or other activities that could impact the site’s future land use. A reuse assessment can be important at every stage in the remedial process and should begin as early as practicable in the remedial process but can be updated and refined up to and beyond the completion of the ROD. Exhibit 1 shows the applications of reuse assessments to the stages of the remedial process.

**What Is Reuse Planning?**

Reuse planning supported by the US EPA is a voluntary, community-based process that incorporates a wider range of site, local, and regional information. A typical reuse planning process takes into account the area’s features and dynamics, such as surrounding land uses and site access, social and industrial history, community goals and priorities, existing community planning initiatives, local regulatory frameworks, and local and regional market conditions. Reuse planning involves the evaluation of this information by a multiperspective team that works with the community and maps out potential reuse activities on specific portions of a site. As communities identify their objectives and develop conceptual reuse plans, the US EPA, states, and tribes can provide valuable infor-

---

**Case Study—Camilla Wood Preserving Company, Camilla, Georgia**

During the US EPA-facilitated reuse planning process, Camilla residents learned the details about the site’s 40 years of timber product preservation activities, the resulting contamination, and the Superfund remedial process. The planning process, as summarized in a May 2004 report (US EPA, 2004c), led to the development of realistic reuse expectations: the community determined that the anticipated future recreational use did not require a cleanup to residential standards. The community’s input during the reuse planning process was intended to inform the Camilla Wood Preserving site ROD.
Projects at Superfund sites have shown that conducting reuse planning activities with the US EPA, state, and tribal participation can help to streamline the remedial process, reduce remedial action costs, educate communities, establish realistic expectations for site cleanups, and result in remedies that achieve protectiveness, community acceptance, and positive reuse outcomes.

How Do Reuse Assessments and Reuse Plans Relate to Each Other?

Because both reuse assessments and reuse planning can occur at any time in the remedial process, they can affect each other in different ways. A reuse plan developed after a reuse assessment can resolve uncertainties identified in the reuse assessment, clarify and provide more specific details about likely future uses that may inform remedy design or implementation, or change the US EPA’s original assumption of likely future use. A reuse plan done before a reuse assessment can greatly assist the US EPA with the identification of reasonably anticipated future land use. In addition, the US EPA can even adopt the reuse plan to serve as a reuse assessment. Regardless of whether reuse planning occurs before or after a reuse assessment, the US EPA is not obliged to abide by the reuse plan’s findings. If it appears that conclusions about future uses are not realistic or were derived without adequate community participation, the US EPA may arrive at different conclusions about likely future land use.

Resources for Remedy Selection and Design

The US EPA has created many tools and resources to support Superfund site reuse, including several that describe how to consider reuse during remedial planning and design. “Reusing Superfund Sites: Commercial Use Where Waste Is Left on Site” (US EPA, 2002b), “Reusing Superfund Sites: Recreational Use of Land Above Hazardous Waste Containment Areas” (US EPA, 2001b), and “Reusing Cleaned Up Superfund Sites: Golf Facilities Where Waste Is Left on Site” (US EPA, 2003b) provide planning-level information and examples of accommodating reuse considerations at Superfund sites. These reports do not create or alter existing US EPA policy or guidance; rather, they inform stakeholders about technical and planning issues that may arise during the remediation process when reuse of a site is intended following cleanup.

Case Study—Velsicol Site, St. Louis, Michigan

At the Velsicol Chemical Corporation site in St. Louis, Michigan, the community engaged in a US EPA-facilitated reuse planning process to determine appropriate future uses of the site. After analyzing site characteristics, surrounding land use patterns, and local market conditions, the community created a reuse framework that highlights five areas for multiple reuse opportunities at the site: commercial, recreational, community, educational, and ecological. This reuse framework is now informing the site’s feasibility study and identification of alternative remedial options. As a result of the process, the community established reasonable reuse and remediation expectations; the US EPA has new stakeholder connections and a new understanding of community interests; and the site remedy is more likely to be backed by community support. (For more information, see US EPA, 2004b.)
CONSIDERING REUSE DURING POST-CONSTRUCTION ACTIVITIES AND LONG-TERM STEWARDSHIP

Over the course of the past year, the US EPA has focused significant attention on supporting reuse at sites that have already been cleaned up but are not in use. In 2004, the US EPA announced a new phase of the SRI, the Return to Use Initiative. It has as its major purpose the removal of barriers to reuse that are not necessary for the protection of human health, the environment, or the remedy at sites where remedies are already in place. Return to Use allows the US EPA to support communities interested in the reuse of sites that might otherwise remain vacant or underutilized for many years. The first step in returning a cleaned-up Superfund site to use is to identify any unnecessary barriers; these barriers take many forms, some physical (e.g., fences and warning signs not necessary to protect human health and the environment), some social (e.g., Superfund site stigma). To address physical barriers, the US EPA is committed to reviewing existing remedies to determine if there are relatively modest ways to alter them to encourage reuse of the sites. These minor alterations to the remedies (e.g., allowing pedestrian access to a site while continuing to prohibit vehicular access) typically do not trigger changes to decision documents such as RODs.

Social barriers are often the most prominent impediments to site reuse. Historically, the US EPA has written comfort letters and prospective purchaser agreements (PPAs) to address the site status and liability concerns associated with formerly contaminated properties. The US EPA characterizes comfort letters as documents that can help to clarify the likelihood of US EPA involvement at a property; identify the applicability of a statutory provision or US EPA policy (e.g., the Windfall Lien policy) to a specific party or property; describe the cleanup progress at a Superfund site; or suggest reasonable steps that should be taken at a site.

The US EPA also has employed PPAs, which the Agency defines as settlement mechanisms used to provide liability relief to a purchaser of Superfund property prior to acquisition, to allow the purchaser to avoid becoming a potentially responsible owner under the Superfund liability scheme (US EPA, 2005). The 2002 Brownfields amendment significantly altered the Superfund liability scheme by providing liability relief to bona fide prospective purchasers (BFPPs). As a result, the US EPA believes that, in most cases, the US EPA is committed to reviewing existing remedies to determine if there are relatively modest ways to alter them to encourage reuse of the sites.

Case Study—Butterworth Landfill, Grand Rapids, Michigan

At the Butterworth Landfill, the ROD required that a fence surround the site to prevent vehicular access to the capped area; however, pedestrian and bicycle traffic was permissible. Under the US EPA’s guidance, local officials installed a gate in the perimeter fence so that city residents could access and use the site for nonvehicular recreational purposes. The US EPA is currently working with the City of Grand Rapids Parks and Recreation Department to ensure that the city’s reuse plans for the site will be compatible with the site’s remedy. The city hopes to use an existing road on the landfill surface and construct a 250-foot trail extension, thereby creating a bike trail that traverses the site and links two of the city’s already existing recreational trails. The plan may also include enhancing a boat launch into the Grand River so that future site users can access the river for recreational purposes. Picnic areas, sports fields, and a playground have also been proposed.
cases, the BFPP provision makes PPAs from the federal government unnecessary. However, the US EPA will still consider providing a prospective purchaser with a covenant not to sue in limited circumstances where public interest will be served.

Communities participating in the Return to Use Initiative have expressed strong interest in receiving US EPA-issued Ready for Reuse (RfR) Determinations to reduce Superfund site stigma and clarify the protective uses of sites. An RfR Determination is an environmental status report by the US EPA, in consultation with states, tribes, and local governments. RfR Determinations will not be issued for every site; the US EPA may decide to issue RfR Determinations at a site where there is sufficient information to make the determination that all or a portion of the site is protective for specified types of uses and where the RfR Determination is considered necessary to promote site reuse. RfR Determinations are intended to provide information to the public and the real estate marketplace in plain English about environmental conditions at Superfund sites to facilitate their reuse. RfR Determinations do not represent new Agency decisions but are based on prior US EPA decision documents. RfR Determinations do not supercede local land use decisions and clearly state that future users must adhere to all institutional controls or limitations; all institutional controls are summarized in the documents and included in full in the appendices. RfR Determinations also state which entities are responsible for ensuring compliance with all limitations. In the first year since the US EPA began using this tool, eight RfR Determinations were issued for Superfund sites, and many more are in the pipeline. State and local agencies have cosigned half of the RfR Determinations thus far, and the US EPA encourages state concurrence on future RfR Determinations.

The US EPA and communities are using multiple approaches to promote reuse activities. At some sites, RfR Determinations used in concert with other reuse tools, including comfort letters, reuse assessments, and reuse plans, have proven effective. The Return to Use Initiative also presents opportunities for communities to link with Superfund reuse partners, such as the Academy of Model Aeronautics and the U.S. Soccer Foundation, to work toward reuse of sites to their mutual advantage. (For more information on RfR Determinations, see US EPA, 2004a).

An RfR Determination is an environmental status report by the US EPA, in consultation with states, tribes, and local governments.

Case Study—Arlington Blending & Packaging, Arlington, Tennessee
A comfort letter proved to be a particularly useful tool at a former Superfund site in Arlington, Tennessee. Town of Arlington officials thought that the Arlington Blending & Packaging property would be a good location for a community park. However, town officials felt some trepidation about acquiring the property for unpaid back taxes. In July 2004, the US EPA issued a comfort letter detailing the liability statutes that would protect the Town of Arlington if it took ownership of the property. Town officials also sought a Ready for Reuse Determination for the site in order to allay the community’s fears about the safety of the site. The town superintendent commented on the effectiveness of the RfR Determination issued for the site: “Without the Ready for Reuse Determination, there is no way that we could have ever convinced the Board and people that here’s a property that was once a Superfund site, and we’re going to put it to use. It enhanced the aesthetics of the community, upgraded the property value of the surrounding properties, and makes a better experience for the people and the children in the area.”
In an effort to broaden the US EPA’s ability to support reuse at construction-complete sites, the SRI is also examining the Five-Year Review process as part of the Return to Use Initiative. The US EPA conducts a site review every five years at any site where waste has been left on site. Determining whether future use scenarios have changed or will change is an important element of the Five-Year Review process. Taking steps to understand potential future uses can help ensure that the protective-ness of the remedy and the potential future use are consistent. The Five-Year Review can also present an opportunity for the US EPA to clarify appropriate uses of the site based on cleanup standards and identify future users interested in reusing sites and taking over operation and maintenance activities, potentially reducing costs to the US EPA, states, and responsible parties. The analysis conducted during a Five-Year Review, which is a routine part of long-term stewardship activities, can also pinpoint the existing barriers to reuse and clarify entities responsible for the implementation and enforcement of institutional controls.

In the Return to Use Initiative’s first year, the US EPA established partnerships with 11 communities to overcome obstacles to reuse at demonstration projects. States were invited to participate in each of these demonstration projects, and in some cases, the state agencies played essential roles in removing the barriers to reuse. The US EPA expects to establish a new set of Return to Use demonstration projects in 2005. The SRI also expects to assist the ten US EPA Regions in preparing RfR Determinations and conducting reuse assessments and reuse plans. Many of the currently existing RfR Determinations and reuse assessments that have been issued are available on the US EPA’s Web sites; reuse plans are available from the US EPA upon request.

CONCLUSIONS

Consideration of the reuse of a Superfund site is an integral part of the remedial process. The reuse mechanisms the SRI has developed result in remedies that are fully protective and consistent with the future use of Superfund sites and thereby assist in the

Case Study—H.O.D. Landfill, Antioch, Illinois

The RfR Determination for the H.O.D. Landfill (US EPA, 2003a) states that site conditions will be protective of recreational uses, provided that institutional controls and operations and maintenance requirements continue to be met for the site. The H.O.D. Landfill was the second Superfund site in the nation to receive an RfR Determination. The site also revealed a trend in Superfund site reuse: the US EPA and communities are increasingly employing multiple approaches to promote reuse activities. The former landfill’s future use as recreational fields for the Antioch Community High School is the culmination of a number of actions: (1) a reuse planning process that clarified the community’s goals and priorities for the site; (2) a party responsible for cleanup costs who supported site reuse and who, with the US EPA’s approval, made special design modifications to the remedy to enhance its ability to support recreational use without compromising the effectiveness of the remedy; (3) an Explanation of Significant Differences from the remedy specified in the ROD that lessens the fence requirement and site-access restrictions; and (4) the RfR Determination that made potential site users comfortable with the safety of using the site.
long-term protection of human health and the environment. The SRI is committed to encouraging partnerships and coordination between the US EPA and the various stakeholders engaged in the cleanup and reuse of Superfund sites. The benefits associated with reuse can be found at all levels. Local communities may benefit from re-energized local economies, increases in the value of surrounding properties, reduction in urban sprawl, increased property tax revenue for local governments, and enhanced recreational facilities and ecological resources. Parties responsible for cleanup costs may find opportunities to share operation and maintenance costs with future users, create new economic opportunity, and improve their local image. And perhaps most important, local stakeholders contribute to the long-term protectiveness of the remedy by finding and supporting productive uses for the property that are consistent with the remedy.

For more information on ways to integrate remedy and reuse, visit the Superfund Redevelopment Initiative Web site, http://www.epa.gov/superfund/programs/recycle.

REFERENCES


Michael B. Cook is the director of the Office of Superfund Remediation and Technology Innovation. Mr. Cook has also served as the US EPA’s deputy director of the Office of Solid Waste and director of the Offices of Drinking Water and Wastewater Management.

Melissa Friedland is the national program manager for Superfund redevelopment with responsibility for the Superfund Redevelopment Initiative, the US EPA’s effort to return contaminated Superfund sites to productive use after cleanup. She has worked at the US EPA since 1980, in the US EPA’s solid waste, enforcement, and Superfund programs.