



United States
General Accounting Office
Washington, D.C. 20548

Resources, Community, and
Economic Development Division

B-265794

August 28, 1995

The Honorable Joe Skeen
House of Representatives

Dear Mr. Skeen:

You requested that we determine whether there are federal guidelines or estimates of the costs of waste site assessment and characterization, preferably on a per-acre basis. To determine what information was readily available on such costs, we contacted the federal agencies with the greatest involvement in waste site assessment and characterization activities--the Environmental Protection Agency (EPA), the Department of Energy (DOE), and the Department of Defense (DOD).

EPA's responsibilities include overseeing the process of determining whether facilities requiring cleanup should be listed as the highest priority sites on the National Priorities List (NPL) under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended--commonly known as Superfund. DOE is responsible for environmental cleanup and waste management at 15 major contaminated facilities and more than 100 smaller facilities. DOE's responsibility includes the cleanup of 3,700 waste sites in 34 states and territories where weapons production has resulted in radioactive, hazardous, and mixed waste contamination.¹ Finally, DOD is responsible for cleaning up about 24,800 waste locations, including 21,400 at active installations and 3,400 at formerly used properties.

¹In our April 1994 report, Federal Facilities: Agencies Slow to Define the Scope and Cost of Hazardous Waste Site Cleanups (GAO/RCED-94-73, Apr. 15, 1994), we reported that DOE had identified 3,700 inactive release sites, 500 facilities requiring decontamination and decommissioning, and over 5,000 uranium mill tailings and formerly utilized sites as needing cleanup.

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In summary, we found that none of these agencies track assessment and characterization costs on a per-acre basis. While EPA has budget planning cost guidelines for the various steps in the assessment and characterization process, these guidelines are not expressed in costs per acre and do not represent the actual costs of assessing any specific waste site. Federal officials told us that the costs of assessing and characterizing sites are not kept on a per-acre basis because those costs are determined by the complexity of the site and its possible contamination rather than by its size.

EPA's Budget Planning Cost Guidelines
for Site Assessment

The main purpose of the site assessment process is to determine if the site presents a sufficient hazard to the public or the environment to be designated for intensive investigation and possible remedial action. Sites are so designated by being listed on the NPL. EPA performs site assessments for privately owned properties. For sites on property owned by other federal agencies, the federal agency that owns the property performs and pays for the site assessment.

EPA officials told us EPA's site assessment process includes from one to three steps, depending on the complexity of the site. The site assessment steps are:

- a preliminary assessment, which consists of a brief physical survey of the site and a review of the existing documentation on the site's activities and potential contaminants;
- a site inspection, which consists of a more detailed examination of the site, including some soil and groundwater sampling; and
- for those sites that will be listed on the NPL, preparation of a Hazard Ranking Package to summarize the information collected about the site during the assessment process.

EPA's budget planning cost guidelines for these steps range from about \$7,000 for the preliminary assessment to about \$31,000 for preparation of a Hazard Ranking Package.

EPA's Budget Planning Cost Guidelines
for Site Characterization

After a site has been listed on the NPL, EPA conducts a Remedial Investigation. Although the Remedial Investigation is usually conducted in conjunction with a Feasibility Study, the purpose of the two activities is quite different. The Remedial Investigation is designed to characterize the site; that is, to develop information on (1) the type and extent of contamination at the site and (2) the site itself, including its geology, water resources, population, and environment. The Feasibility Study uses the information developed during the Remedial Investigation to assess alternatives for cleaning up the site. EPA officials told us that the budget planning cost guideline is about \$525,000 for the Remedial Investigation phase and about \$225,000 for the Feasibility Study phase.

Factors Affecting Assessment
and Characterization Costs

While EPA has budget planning cost guidelines for site assessment and characterization, the actual cost is driven by the degree of complexity of the site rather than its size. Officials of EPA, DOE, and DOD agree that, in general, the more complex the site is, the more costly it is to perform the assessment and characterization. However, a site's complexity may have little relationship to a measurement of surface size, such as acreage.

Site complexity includes factors such as the geology of the site (e.g., fractured lava, limestone, etc.) and the presence of endangered species, fragile environmental features such as protected wetlands, and sources of water such as deep aquifers or rivers.

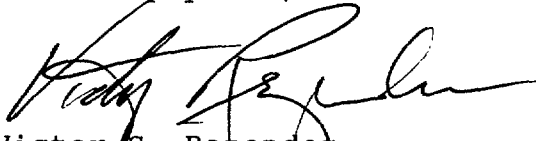
Site complexity also includes the types and distribution of the contamination expected or discovered. For example, a site that was formerly used for agriculture may have relatively few contaminants spread evenly throughout the soil. Conversely, a site that contained an industrial park may have many different types of contaminants (chemicals, petroleum products, metals); in addition, the levels of contamination may vary widely, from relatively low levels in some areas to very high levels in other areas.

Other Cost Estimates and Information

DOE and DOD officials told us that site assessment and characterization costs are not tracked on a per-acre basis. Although data on the average costs could be prepared if requested, the officials stated that such data are not very useful for predicting future costs because of the differing complexity of individual sites, as discussed above.

I hope that this information will assist you in your oversight of federal environmental cleanup programs. If you have questions, please call me at (202) 512-3841.

Sincerely yours,



Victor S. Rezendes
Director, Energy and
Science Issues

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