



Highlights of [GAO-05-165](#), a report to the Committee on Environment and Public Works, U.S. Senate

## Why GAO Did This Study

Since the events of September 11, 2001, the security of the nation's drinking water and wastewater infrastructure has received increased attention from Congress and the executive branch.

Wastewater facilities in the United States provide essential services to residential, commercial, and industrial users by collecting and treating wastewater and discharging it into receiving waters. These facilities, however, may possess certain characteristics that terrorists could exploit either to impair the wastewater treatment process or to damage surrounding communities and infrastructure.

GAO was asked to obtain experts' views on (1) the key security-related vulnerabilities affecting the nation's wastewater systems, (2) the activities the federal government should support to improve wastewater security, and (3) the criteria that should be used to determine how any federal funds are allocated to improve security, and the best methods to distribute these funds. GAO conducted a systematic, Web-based survey of 50 nationally recognized experts to seek consensus on these key wastewater security issues.

EPA expressed general agreement with the report, citing its value as the agency works with its partners to better secure the nation's critical wastewater infrastructure.

[www.gao.gov/cgi-bin/getrpt?GAO-05-165](http://www.gao.gov/cgi-bin/getrpt?GAO-05-165).  
To view the full product, including the scope and methodology, click on the link above.  
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# WASTEWATER FACILITIES

## Experts' Views on How Federal Funds Should Be Spent to Improve Security

### What GAO Found

Experts identified the collection system's network of sewer lines as the most vulnerable asset of a wastewater utility. Experts stated that the sewers could be used either as a means to covertly gain access to surrounding buildings or as a conduit to inject hazardous substances that could impair a wastewater treatment plant's capabilities. Among the other vulnerabilities most frequently cited were the storage and transportation of chemicals used in the wastewater treatment process and the automated systems that control many vital operations. In addition, experts described a number of vulnerabilities not specific to particular assets but which may also affect the security of wastewater facilities. These vulnerabilities include a general lack of security awareness among wastewater facility staff and administrators, interdependencies among various wastewater facility components leading to the possibility that the disruption of a single component could take down the entire system, and interdependencies between wastewater facilities and other critical infrastructures.

Experts identified several key activities as most deserving of federal funds to improve wastewater facilities' security. Among those most frequently cited was the replacement of gaseous chemicals used in the disinfection process with less hazardous alternatives. This activity was rated as warranting highest priority for federal funding by 29 of 50 experts. Other security-enhancing activities most often rated as warranting highest priority included improving local, state, and regional collaboration (23 of 50 experts) and supporting facilities' efforts to comprehensively assess their vulnerabilities (20 of 50 experts).

When asked how federal wastewater security funds should be allocated among potential recipients, the vast majority of experts suggested that wastewater utilities serving critical infrastructure (e.g., public health institutions, government, commercial and industrial centers) should be given highest priority (39 of 50). Other recipients warranting highest priority included utilities using large quantities of gaseous chemicals (26 of 50) and utilities serving areas with large populations (24 of 50). Experts identified direct federal grants as the most effective method to distribute the funds, noting particular circumstances in which a matching contribution should be sought from recipients. Specifically, a matching requirement was often recommended to fund activities that benefit individual utilities. Grants with no matching requirements were often recommended for activities that should be implemented more quickly and would benefit multiple utilities. The other funding mechanisms experts mentioned most frequently included the federal Clean Water State Revolving Fund, loans or loan guarantees, trust funds, and tax incentives.