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HAZARDOUS WASTE

Facility Inspections Are Not Thorough and Complete

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The Honorable Thomas A. Luken
Chairman, Subcommittee on Transportation,
Tourism, and Hazardous Materials
Committee on Energy and Commerce
House of Representatives

The Honorable James J. Florio
House of Representatives

In response to your June 2, 1986, request, this is our report on the thoroughness and completeness of hazardous waste handler inspections conducted by the Environmental Protection Agency and authorized states under the Resource Conservation and Recovery Act.

As arranged with your offices, unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days from the date of this letter. At that time, we will send copies to interested parties and make copies available to others upon request.

This work was performed under the general direction of Hugh J. Wessinger, Senior Associate Director. Major contributors are listed in appendix V.

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Executive Summary

Purpose

Millions of tons of hazardous wastes are generated each year which, if not controlled and properly managed, may threaten human health and the environment. Because of the dangers they pose, complete and thorough inspections of facilities generating, treating, storing, and/or disposing of hazardous waste are necessary to assure that such wastes are being properly managed and controlled to prevent their unintended escape into the environment.

The Chairman, Subcommittee on Transportation, Tourism, and Hazardous Materials, House Committee on Energy and Commerce, asked GAO to determine if the hazardous waste handler inspections being conducted by the Environmental Protection Agency (EPA) and the states are thorough and complete. The requester also asked GAO to determine the extent to which EPA has provided inspection guidance to its regions and the states, established training and inspector qualification standards, and reviews or oversees inspections.

Background

Under the Resource Conservation and Recovery Act (RCRA), EPA has established a regulatory framework for controlling and managing the generation, transportation, treatment, storage, and disposal of hazardous waste. Waste handler inspections are the primary means by which EPA and states authorized by EPA to administer the RCRA program assure themselves that RCRA regulatory requirements are being met. Within EPA the RCRA inspection program is under the direction of the Assistant Administrator for Solid Waste and Emergency Response. In 1986 the states, together with EPA and EPA contractors, conducted 11,785 RCRA waste handler inspections. About 88 percent of these inspections were performed by the states.

Results in Brief

RCRA hazardous waste handler inspections are not as thorough and complete as they should be. State, EPA regional, and EPA contract inspectors are not detecting a substantial number of regulatory violations during inspections—many of which are considered by EPA to warrant immediate attention because of the severe environmental threats they pose. In addition, inspectors are not covering all waste handler activities in their inspections nor fully documenting deficiencies they find.

A lack of inspector training and limited experience were cited as primary causes for inspection deficiencies by EPA headquarters inspection experts who witnessed and critiqued 26 RCRA inspections for GAO. Inspector training has been a long identified—but unmet—need in the

RCRA program. Extensive turnover, coupled with a substantial increase in the total number of RCRA inspectors, has resulted in approximately 55 percent of the inspectors in the regions and states GAO reviewed having less than 2 years of RCRA inspection experience.

Guidance for conducting RCRA inspections is incomplete. In addition, EPA has not established specific qualification standards for RCRA inspectors, which has resulted in an inspector corps with a variety of backgrounds. These varied backgrounds, while not necessarily an impediment to an effective inspection program, increase the importance of inspection guidance and training— especially in view of the limited inspection staff experience.

Oversight of RCRA inspections, an important internal control to ensure the thoroughness and completeness of inspections, has been limited because of resource constraints and other priorities. EPA's current plans call for even further reductions in oversight for fiscal year 1988. As a result of our review, EPA is reconsidering this decision.

Principal Findings

Indications of Inspection Deficiencies

EPA inspection experts, accompanied by GAO, observed and critiqued 26 RCRA inspections performed from December 1986 to May 1987 by either state, EPA regional, or EPA contractor inspectors. The observed inspectors identified a total of 200 RCRA violations at 22 of the facilities during these inspections. According to the EPA experts observing the inspections, an additional 181 violations were not detected. Two-thirds of the missed violations were Class I violations which, according to EPA, could represent an immediate and serious threat to the environment. In addition, at 23 waste handlers the inspectors overlooked or failed to inspect areas in which hazardous waste was handled and/or failed to sufficiently review documentation relevant to the waste handler's activities. Furthermore, the inspection reports prepared by the observed inspectors for 15 inspections were found to be incomplete.

Inspection Guidance and Regulations

EPA inspection guidance is incomplete. EPA issued guidance on how to conduct RCRA groundwater monitoring compliance inspections in December 1986 and is currently developing a replacement for its 1981 guidance for performing comprehensive RCRA inspections at all types of

hazardous waste handlers. EPA also plans to promulgate RCRA inspection regulations, as required in the 1984 RCRA amendments, once this guidance is updated.

Inspector Training

In 19 of the 26 observed inspections, EPA experts cited a lack of training as a major factor contributing to poor inspector performance. EPA identified inspector training problems in the RCRA program in 1984. Later, in February 1986, EPA determined that a continuing mandatory RCRA inspector training program was needed. Although EPA recently developed and conducted a groundwater monitoring inspection training course and began developing an overall inspection training course in June 1987, EPA has not yet decided whether to make RCRA inspector training continuing and mandatory.

Inspector Qualification Standards

EPA has seen no need to establish specific inspector qualification standards and has allowed the EPA regions and states to use staff with a variety of academic backgrounds to conduct RCRA inspections. Such a variety in itself may not be detrimental. However, when staff members are also inexperienced, adequate guidance and training become more important.

Inspection Oversight

Because of resource constraints and a perception by EPA managers that oversight inspections are of lesser program importance, limited oversight is being exercised over RCRA inspections. The regions are not overseeing 10 percent of state inspections as targeted by EPA guidelines, and in some cases the regions are not addressing state inspection quality in RCRA state grant reviews. In addition, few deficiencies were being detected and/or reported during the limited oversight inspections that have been conducted—which conflicts sharply with the results of the 26 inspections that GAO observed. Further, EPA headquarters is not overseeing inspections conducted by the regional staffs and has not required the regions to oversee EPA contractor inspections.

For fiscal year 1988 EPA has eliminated the 10- percent oversight target and is now allowing the regions to determine their own state inspection oversight requirements. Furthermore, EPA headquarters has eliminated the requirement that state inspection quality be addressed in its regional program reviews. However, based on GAO's 26 inspections, EPA is now reevaluating how best to assure the thoroughness and completeness of RCRA inspections.

Recommendations

To improve the quality of inspections at RCRA facilities, and to ensure that hazardous wastes are being properly controlled and managed, GAO recommends that the Administrator, EPA,

- ensure that inspection guidance and regulations on how to conduct inspections are issued as scheduled;
- develop and implement a continuing and mandatory RCRA inspector training program;
- reinstate the target requirement that the regions annually oversee 10 percent of state RCRA inspections and ensure that state performance in conducting these inspections is addressed in state grant reviews performed by the regional offices;
- reinstate the requirement that regional oversight of state RCRA inspections be evaluated and reported in headquarters regional program reviews; and
- develop and implement a system to provide routine oversight over EPA regional and EPA contractor inspections, as well as documenting and reporting the results to EPA headquarters.

Agency Comments

GAO discussed the information presented in this report with EPA and state officials. Their comments are included where appropriate. However, as requested by the Chairman's office, GAO did not obtain official agency comments.

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Abbreviations

CEI	comprehensive evaluation investigation
CME	comprehensive groundwater monitoring evaluation
EPA	Environmental Protection Agency
OSWER	EPA's Office of Solid Waste and Emergency Response
OWPE	EPA's Office of Waste Programs Enforcement
RCED	Resources, Community, and Economic Development Division
RCRA	Resource Conservation and Recovery Act
TSD	treatment, storage and/or disposal facility

Introduction

Background

Millions of tons of hazardous wastes are generated each year which, if not controlled and properly managed, could severely threaten human health and the environment. The public health problems that have resulted from improperly managed hazardous wastes at Love Canal, New York, and at Times Beach, Missouri, illustrate the potential environmental harm posed by these wastes. In view of this threat, and a concern that waste management practices have not always afforded a reasonable degree of environmental protection, Congress enacted the Resource Conservation and Recovery Act of 1976 (RCRA) to, among other things, regulate the management of hazardous wastes and improve waste disposal practices.

The act prescribes specific regulatory standards for different types of hazardous waste handlers, i.e., (1) generators, (2) transporters, and (3) treatment, storage, and disposal (TSD) facilities. Nationwide, there are over 100,000 generators, 16,537 hazardous waste transporters, and 5,674 facilities that treat, store, or dispose of hazardous waste.[1] Generator and TSD facility standards are similar, although the TSD facility standards are much more extensive. RCRA also requires that TSD facilities be permitted, i.e., operated only with an EPA-approved permit. TSD facilities in operation on or before November 19, 1980, were allowed to operate under interim status regulations until a final hazardous waste operating permit could be issued, at which time the facilities must be brought into compliance with the final permit regulations. The regulatory standards for final permitted facilities are generally more specific and extensive than those for interim status facilities.

Inspection Requirements, Roles, and Responsibilities

Section 3007 (a) of RCRA authorizes EPA to inspect generators, transporters, and TSD facilities for compliance with RCRA regulatory requirements. EPA does not normally inspect transporters. Under an interagency agreement the Department of Transportation inspects hazardous waste transporters for compliance with hazardous material transportation regulations. The agreement requires Transportation to advise EPA of possible RCRA violations for EPA enforcement actions.

[1]EPA has identified an estimated 85,000 large quantity generators (who generate more than 1,000 kilograms of hazardous waste per month) since RCRA passed in 1976. Of those, EPA estimates that 40,000 are currently operating. In addition, EPA estimates that over 100,000 small quantity generators (who generate between 100 and 1,000 kilograms per month) are currently operating, although only about 60,000 have been identified as of July 1987 by EPA. Handlers that only generate hazardous waste are counted as generators. Generators that also treat, store or dispose of hazardous waste are counted by EPA as TSD facilities.

RCRA provides that the states may administer their own hazardous waste programs after authorization by EPA. Such authorization includes the authority to inspect RCRA regulated facilities for compliance with regulatory requirements. As of July 1987, 42 states had received final authorization to administer the RCRA program. The remaining states are carrying out various aspects of the hazardous waste program under cooperative arrangements with EPA while working towards final program authorization, although EPA retains overall responsibility. Under RCRA, regulations promulgated by an EPA-authorized state may not impose any requirements that are less stringent than the federal requirements, but states are free to adopt more stringent measures. To help the states administer the RCRA program, EPA provided $65.8 million in grant funds in fiscal year 1986, estimates $72.7 million will be provided in fiscal year 1987, and requested $72.7 million for fiscal year 1988. While most states administer the RCRA program, including inspections, EPA retains overall responsibility for assuring that RCRA regulatory requirements are met.

The two main types of inspections used to determine generator and/or TSD facility compliance with RCRA requirements are as follows.

- Compliance Evaluation Investigation (CEI) - The objective of this type of inspection is to evaluate a generator or TSD facility's general overall level of compliance with RCRA interim status or permit requirements and determine the need for enforcement actions or follow-up inspections/evaluations. The inspection includes a characterization of the handler's waste management activities, an identification of the types of hazardous and nonhazardous wastes present at a facility, and an inspection of the areas that generate, treat, store, or dispose of hazardous and/or nonhazardous wastes. The inspector examines RCRA-required records and reports including, but not limited to manifests, waste analysis plans, groundwater sampling and analysis plans, groundwater monitoring systems, contingency plans, and closure/post-closure plans.
- Comprehensive Groundwater Monitoring Evaluation (CME) -The objective of this type of inspection is focused on and limited to determining the adequacy of a land disposal facility's groundwater monitoring system design and operation.[2] It consists of a more comprehensive investigation of the groundwater monitoring system than done in a CEI, including a more detailed investigation of the engineering features and

[2]Land disposal facilities include landfills, waste piles, surface impoundments, and land treatment facilities used to manage hazardous waste. Under the interim status regulations, owners and operators of land disposal facilities were, by November 19, 1981, to have instituted a ground water monitoring system.

effectiveness of the groundwater monitoring system and the facility's hydrogeological conditions. Operation of the groundwater monitoring system is reviewed by evaluating the owner/operator's sampling and analysis plan and its implementation. To the extent possible CMEs are to be scheduled to coincide with the owner/operator sampling of the groundwater to evaluate the sampling techniques. In many cases samples of groundwater are collected and analyzed.

There are also four other types of RCRA inspections: (1) case development investigations, (2) sampling inspections, (3) follow-up evaluations, and (4) "other" inspections. These inspections are generally enforcement-related and therefore are not routinely scheduled, have no standard inspection scope, and generally result from a CEI or CME inspection.

In committee discussions leading to the 1984 RCRA amendments, the Senate and House expressed concern that (1) too few RCRA facility inspections were being conducted to effectively monitor compliance, and (2) the inspections that did occur were conducted under widely varying state-formulated criteria. Because of these concerns, several new inspection requirements were included in the amendments. More specifically, the amendments required that all federal, state, and local government-owned/operated TSD facilities be inspected annually, and all other facilities must be inspected bi-annually. In addition, to ensure that inspections were thorough and complete, the EPA Administrator was directed to promulgate regulations governing the manner of RCRA inspections, including the manner in which inspection records should be maintained and the manner in which inspection reports should be filed. The status of EPA efforts to comply with these latter requirements is discussed in chapter 3.

Within EPA, the Office of Solid Waste and Emergency Response (OSWER) is responsible for implementing the RCRA inspection and enforcement program. Within OSWER, the Office of Waste Programs Enforcement (OWPE) is the unit responsible for inspection and enforcement activities. This includes writing inspection regulations, developing inspection guidance, and providing inspection training to appropriate EPA/state staff. OWPE is also responsible for ensuring that appropriate enforcement actions are taken, and overseeing regional and state inspection and enforcement activities.

Prior to the 1984 RCRA amendments, the states conducted the majority of RCRA inspections. Under the RCRA amendments, however, EPA is now required to annually inspect all federal, state, and local government TSD

facilities. Federal, state, and local government facilities comprise about 8 percent of the hazardous waste facilities nationwide. EPA is performing some of these inspections with its own regional office staffs and is using EPA contractors to inspect others.

In fiscal year 1986, 11,785 CEI and CME inspections were performed. Table 1.1 presents inspection statistics for the states, the EPA regions, and the contractors. The states performed 88 percent of all inspections in fiscal year 1986.

Table 1.1: Fiscal Year 1986 CEI and CME Inspections[a]

Inspections conducted by:	CEI		CME	Totals	Percent
	Generators	TSD facilities			
States	5,593	4,131	588	10,312	88
EPA	226	996	148	1,370	11
EPA contractors	8	77	18	103	1
Totals	**5,827**	**5,204**	**754**	**11,785**	**100**

[a]Data is from EPA's Hazardous Waste Data Management System. The statistics presented do not include other types of RCRA inspections.

Objectives, Scope, and Methodology

In a June 2, 1986, letter, the Chairman, Subcommittee on Transportation, Tourism, and Hazardous Materials requested that GAO evaluate the extent to which EPA is fulfilling its responsibility to assure that thorough inspections are performed at facilities handling hazardous wastes.[3] After subsequent discussions with the Chairman's office, we agreed to address the following questions:

- Are thorough and complete inspections being performed at RCRA generator and TSD facilities?
- What is the extent of EPA inspection guidance to the EPA regions and states conducting inspections for EPA?
- What inspector qualification standards and training requirements have been established by EPA?
- What degree of oversight is being exercised over RCRA inspections?

As agreed with the Chairman's Office, we performed our review in six EPA regions and in six states within three of the regions as follows:

[3]Prior to the 100th Congress the Subcommittee was named the Subcommittee on Commerce, Transportation, and Tourism. The name of the Subcommittee was changed—but not the jurisdiction for environmental affairs—by the 100th Congress. As agreed with the new subcommittee chairman's office, this report is also being issued to Congressman James J. Florio, the prior subcommittee chairman.

Region II, New York and New Jersey; Region VI, Louisiana and Texas; Region IX, California and Nevada; Region IV; Region V; and Region VIII. These regions and states were selected because of the relatively large volume of waste generated within their jurisdictions or borders. The regions and states selected account for 96 and 34 percent, respectively, of the hazardous waste generated annually in the United States. We also included these six regions because they are responsible for overseeing state inspection activities in a total of 32 states and 4 U.S. territories.

In general, we reviewed EPA and state RCRA inspection policies and procedures, inspection reports, and inspection oversight activities. We interviewed hazardous waste officials at EPA headquarters in the six EPA Regions included in our review, and the following state environmental agencies: the California Department of Health Services, the Louisiana Department of Environmental Quality, the Nevada Department of Conservation and Natural Resources, the New Jersey Department of Environmental Protection, the New York State Department of Environmental Conservation, and the Texas Water Commission. We focused on CEI inspections because they are broader in scope than CME or other types of RCRA inspections. Therefore, we did not perform audit work at the California State Water Resources Control Board, which is responsible for performing CME inspections at California land disposal facilities. Neither did we do work at the California county agencies that perform some generator inspections.

We used two approaches to obtain information regarding whether thorough and complete inspections are being performed at RCRA generator and TSD facilities. First, we observed and evaluated a number of actual RCRA inspections. EPA's Office of Waste Programs Enforcement provided 5 inspection experts who, accompanied by GAO, observed 26 CEI inspections in the regions and states included in our review. Twelve inspections were performed by state inspectors, 12 were performed by EPA regional inspectors, and 2 were performed by EPA contractor inspectors. All inspections were observed during the period December 2, 1986, through May 8, 1987.[4] After observing each inspection, the EPA experts completed an observation report assessing the thoroughness and completeness of both the inspection and the follow-on inspector's written inspection report.

[4]Only 2 contractor inspections were observed because Region IX was the only region visited that was using contractor inspectors to perform CEI inspections during this time period.

We did not review the expert inspectors' evaluations with the inspectors that did the actual inspections because, as discussed with the Chairman's office, we are not in a position to resolve technical differences of opinion between the experts and the observed inspectors. Instead, we looked only for indications of the thoroughness and completeness of RCRA inspections. However, at the end of our review we discussed our observations with EPA's Office of Waste Programs Enforcement and provided the Deputy Director with copies of the observation reports completed by EPA's expert inspectors on each of the 26 observed inspections. We did not pursue any follow-up enforcement actions that EPA might have taken to correct problems identified in this review. However, we do have a separate review underway, at the Chairman's request, which focuses on EPA's and states' RCRA enforcement activities.

We judgmentally selected inspections to observe from available inspection schedules and/or through discussions with responsible inspection officials. Again, CEIs were the only types of inspections observed because they are used to determine compliance with all aspects of RCRA regulations. Another reason for not observing CME inspections was that EPA was in the process of refining the scope of this type of inspection at the time of our review. In selecting inspections to observe, we used the following criteria: (1) handlers that were both generators and TSD facilities with more than one type of treatment, storage, and/or disposal unit and (2) facilities that had had a prior RCRA inspection. In addition, we included one interim status and one permitted facility where feasible per state, region, and contractor. Due to the limited number of permitted facilities nationally, as well as inspection schedules, only 5 permitted facility inspections were observed.

Our second approach in addressing the question of inspection thoroughness was to review the inspection history of a number of generators and TSD facilities. We reviewed the inspection report files of 42 hazardous waste handlers and compared violations found during earlier inspections at these activities with later inspections to determine if the more recently identified violations should have been detected earlier. The 42 handlers whose files we reviewed included 12 land disposal facilities in EPA regions II, IV, and IX that, as of September 30, 1986, (1) had been inspected by EPA's National Enforcement Investigations Center,[5] (2) had been the target of EPA enforcement actions because the owner/operator was suspected of falsely certifying compliance with RCRA groundwater

[5]EPA's National Enforcement Investigations Center provides inspection, investigation, and enforcement support upon request to the regions and states for all environmental programs including RCRA.

monitoring and/or financial responsibility regulatory requirements, or (3) had been inspected by EPA's Groundwater Monitoring Task Force.[6] The balance of the 30 TSD files—we selected five handlers in each of the six states included in our review—were selected using three criteria. Each handler selected had to (1) have two or more types of treatment and/or storage units; (2) have been inspected by at least two different inspectors, and (3) have been cited for one or more Class I RCRA violations in the most recent inspections.[7] For all 42 facilities, the selection criteria used increased the likelihood that a comparison of prior inspection reports might disclose significant violations missed in earlier inspections.

Although the results of our 26 inspection observations and 42 inspection file comparisons are not projectable nationwide, they do serve as an indicator of the thoroughness and completeness of inspections performed in the six EPA regions and six states included in our review. A sample of observations large enough to project our findings nationwide was not possible due to time constraints for completing our review.

To achieve our second objective, related to the extent of EPA inspection guidance, we identified and analyzed EPA's inspection guidance to the EPA regions and states and analyzed EPA's CEI inspection guidance. We discussed the adequacy of EPA's CEI inspection guidance with EPA regional and state inspection officials. We also obtained information on the status of EPA efforts to promulgate regulations mandated by the 1984 RCRA amendments.

To achieve our third objective, regarding RCRA inspector qualification standards and training requirements, we determined what training requirements and inspector qualification standards had been developed by EPA. EPA had already identified the need for a mandatory training program; therefore, we limited our work to reviewing the plans and status of EPA's training development and implementation efforts. Because EPA headquarters had not established qualification standards, we

[6]The EPA Administrator established the Ground Water Monitoring Task Force in 1985 to investigate the adequacy of groundwater monitoring systems at hazardous waste land disposal facilities. The major goals of the Task Force are to determine whether regulated facilities are meeting RCRA requirements to protect groundwater from contamination, to identify and evaluate causes of poor compliance, and to recommend actions needed to improve the groundwater monitoring program.

[7]EPA defines Class I violations as violations that result in a release or serious threat of release of hazardous waste to the environment, or involve the failure to assure that groundwater will be protected, that proper closure and post-closure activities will be undertaken, or that hazardous wastes will be destined for and delivered to RCRA regulated facilities.

obtained senior inspection officials' opinions concerning what the inspector qualification standards should be and collected information on actual inspector qualifications. We also developed information on inspectors' academic backgrounds, length of experience as RCRA inspectors, turnover, salary, and inspection staff growth.

To achieve our fourth objective, regarding the degree of oversight being exercised over state, EPA regional, and EPA contractor inspections, we identified and evaluated the nature and extent of EPA's oversight activities. We also reviewed oversight inspection reports, EPA headquarters program reviews of regional performance, and EPA regional grant reviews of state performance.

Our work was conducted from June 1986 through July 1987 and was performed in accordance with generally accepted government auditing standards. We discussed our findings with agency officials and incorporated their comments when appropriate. At the request of the Chairman's office, we did not seek official comments on this report.

RCRA Inspections Are Not Always Thorough or Complete

RCRA inspections being performed by state, EPA regional, and EPA contractor inspectors are not as thorough and complete as they should be. Both our inspection observations and our reviews of inspection files at other RCRA hazardous wastes handlers disclosed that serious regulatory violations were missed during inspections, significant hazardous waste activities were not adequately reviewed during inspections, and inspection reports were incomplete. EPA inspection experts cited lack of training and experience as causes of inspection deficiencies. Thorough and complete inspections represent a key element of the RCRA regulatory program for determining whether handlers are complying with regulatory requirements. Equally important, inspection reports provide the basis for taking enforcement actions to compel compliance with regulatory requirements. Without thorough and complete inspections, and well-documented inspection reports, there is insufficient assurance that human health and the environment are protected.

Inspection Observations Disclosed Missed Violations, Incomplete Inspections, and Incomplete Reports

Inspector performance varied considerably across the 26 RCRA CEI inspections. According to the EPA expert inspectors' assessment of the performance of the inspectors we observed, some of the inspections were fairly comprehensive. One of the 26 inspections was judged as being thorough and complete. However, they concluded that none of the remaining 25 inspections were as thorough and complete as they should have been, and in 15 cases the inspectors' report on the inspection was incomplete or unclear.

Violations Missed

No RCRA regulatory violations were found by either the observed inspectors or the EPA expert inspectors at two of the 26 handlers inspected. All violations were found at two additional facilities in the opinions of the EPA expert inspectors. At the remaining 22 facilities the observed inspectors found 200 regulatory violations. However, according to the EPA expert inspectors, an additional 181 violations were not detected by the observed inspectors. Of the 181 missed violations, 122 were Class I violations—which EPA defines as violations warranting enforcement priority because, among other reasons, they have either resulted in a release of hazardous wastes into the environment, or they represent a threat of release of hazardous waste. Figure 2.1 is an example of a Class I violation at a hazardous waste land treatment unit where the drainage control system was judged to be inadequate.

Figure 2.1: Example of a Class I Violation at a Hazardous Waste Land Treatment Unit Where the Drainage Control System Was Inadequate

Observed inspectors missed an average of 8 violations, including over 5 Class I violations, in each of the 22 inspections in which violations were missed. For example, 16 violations were missed in one inspection, including 14 Class I violations. Table 2.1 presents statistics on violations found and missed by the state, EPA regional, and EPA contractor inspectors.

Table 2.1: Summary of Violations Missed During 26 Inspections

Inspections	State	EPA region	EPA contractors	Totals
Total observed	12	12	2	26
With missed violations	10	10	2	22
Percent	83	83	100	85
With missed Class I	10	9	2	21
Percent	83	75	100	81
Violations				
Total violations	170	172	39	381
Total found by inspectors	74	108	18	200
Percent	44	63	46	52
Total missed by inspectors	96	64	21	181
Percent	56	37	54	48
Class I Violations				
Total Class I violations	105	102	26	233
Class I found by inspectors	41	60	10	111
Percent	39	59	38	48
Class I missed by inspectors	64	42	16	122
Percent	61	41	62	52

The EPA regulations are divided into 24 primary compliance sections. Table 2.2 presents data on the types of violations missed and the number of Class I violations missed by section of the regulations.

Table 2.2: Summary of Violations of RCRA Regulatory Requirements Missed During 26 Inspections

Generator regulations	Handlers with missed violations	Violations missed	Class I violations missed
General requirements[a]	8	10	10
Manifest	9	14	3
Pre-Transport requirements	11	19	17
Recordkeeping/reporting	0	0	0
Special conditions	0	0	0
Total		**43**	**30**
TSD facility regulations			
General facility standards[b]	18	55	30
Preparedness and prevention	11	12	12
Contingency plans and emergency procedures	11	15	5
Manifest system, record keeping and reporting	6	8	4
Groundwater monitoring	2	2	2
Closure and post-closure plans	7	9	6
RCRA permit program	7	9	8
Recycle/waste recovery	1	1	1
Land disposal restrictions	2	3	2
Use and management of containers	14	22	20
Tanks	0	0	0
Surface impoundments	1	1	1
Waste piles	0	0	0
Landfills	1	1	1
Land treatment	0	0	0
Incinerators	0	0	0
Thermal treatment	0	0	0
Chemical, physical, and biological treatment	0	0	0
Underground injection	0	0	0
Total		**138**	**92**
Total		**181**	**122**

[a]The general requirements for generators include determining if waste generated is hazardous, obtaining EPA identification number, and only offering hazardous waste to transporters or to treatment, storage, or disposal facilities that have received an EPA identification number

[b]The general facility standards include, among other things, requirements for waste analysis plans and analyses, personnel training, security, and owner/operator inspection schedules and logs

As indicated in table 2.2, of the 181 missed violations, about 67 percent were viewed by the EPA expert inspectors as Class I violations. Fewer violations of generator requirements were missed by the observed

inspectors. This is probably attributable to the fact that generator requirements are less extensive than TSD facility requirements. Generator violations were missed in the waste pre-transport requirements, the manifest requirements, and the general standards requirements.

The 19 pre-transport violations varied, including 8 violations involving unlabeled hazardous waste containers and 2 involving open container violations. Other violations included containers in poor condition and hazardous waste containers stored outside designated storage areas.

The 14 generator manifest violations varied and included improper waste minimization certification on manifest, unsigned manifests, incorrect manifest descriptions, and disposal of hazardous waste without a manifest. The 10 missed general requirement violations involved 9 violations of misidentified waste, and one instance of a facility shipping hazardous waste to a non-hazardous waste disposal facility.

The most commonly missed TSD facility requirements were those involving the general facility standards, the use and management of containers, contingency plan and emergency procedures, and preparedness and prevention. The 55 general facility violations included 13 inadequate postings of warning signs, 9 inadequate hazardous waste analysis plans, 16 deficiencies in inspection logs and schedules, and 8 violations for inadequate personnel training and/or training documentation of personnel. Over half of the missed general facility violations were considered serious enough to be classed as Class I violations by the EPA expert inspectors.

The 22 use and management of containers violations included 10 open container violations, 4 violations concerning the poor conditions of the containers, and 2 violations involving incompatible storage of waste. The 15 contingency plans and emergency procedures violations included inadequate contingency plans such as lack of a waste characterization plan, inadequate evacuation routes, and inadequate emergency coordinator phone numbers and addresses. The 12 preparedness and prevention violations included improper stacking of drums, lack of aisle space between drums, and lack of fire and other emergency equipment. Figure 2.2 is an example of a Class I violation involving improper stacking of hazardous waste containers that the EPA contract inspector did not detect. Figure 2.3 is an example of a Class I violation that the EPA regional inspector missed in which hazardous waste containers were stacked 4 high in violation of the RCRA permit which restricts stacking to 3 high.

Figure 2.2: The EPA Contractor Inspector Did Not Detect This Class I Violation Involving Improper Stacking of Damaged Hazardous Waste Containers

Hazardous Waste Activities and Documents Not Inspected or Insufficiently Reviewed

Hazardous waste activities and handler hazardous waste management documents were either not inspected or insufficiently reviewed during 23 of the 26 observed inspections. By not inspecting all hazardous waste activities and handler records, information on the total compliance status of these facilities was not obtained. In addition, waste handling practices that are potentially harmful to public health and the environment may go undetected and be allowed to continue.

Inspectors Did Not Inspect All Required Hazardous Waste Activities

According to the EPA inspection experts, the inspectors did not inspect all required hazardous waste activities in 19 inspections. Table 2.3 presents statistics on which activities were not inspected during these inspections.

Figure 2.3: The EPA Regional Inspector Did Not Detect This Class I Violation in Which Hazardous Waste Containers Were Stacked 4 High in Violation of the RCRA Permit Which Restricted Stacking to 3 High

Table 2.3: Activities Not Inspected During Inspections

	Activities Not Inspected				
	Number of deficient inspections	Waste generation points	Emergency equipment	Satellite accumulation areas	TSD units
State	8	7	7	4	2
EPA Region	9	7	4	6	4
EPA Contractor	2	2	2	0	1
Totals	**19[a]**	**16**	**13**	**10**	**7**

[a]In 19 inspections at least one activity was not inspected. The individual column totals do not add up to 19 because more than one activity may have been overlooked during the same inspection

As shown in table 2.3, waste generation points was the activity most often overlooked. A waste generation point is a production or work area where a hazardous waste is produced. In 16 cases, inspectors checked either an insufficient number or no waste generation points. Since facilities may have numerous waste generation points ranging from one to over a hundred, EPA does not require that all be inspected in order to perform a complete inspection, according to an official in OWPE's RCRA Technical Section. According to this official, a "reasonable number" should be inspected; EPA has not defined how to determine a reasonable number.

As a conservative criterion for determining whether a reasonable number of generation points was inspected, the EPA inspection experts decided if a facility only had one waste generation point, it should be inspected. If a facility had more than one waste generation point, at least two should be inspected. In 11 inspections no waste generation points were inspected, and in 5 inspections there were multiple waste generation points but only one was inspected.

Emergency equipment including communications, spill control, and fire prevention equipment was not inspected in 13 of the 26 inspections. This equipment must be present in both generator areas as well as for TSD units areas. In 9 inspections the inspectors did not check for the presence of this equipment at the generation areas, and in 9 inspections did not check for this equipment in the TSD areas.

The inspectors failed to inspect satellite waste accumulation areas at 10 of 17 facilities with these areas. Satellite accumulation areas are those areas where generators are allowed to temporarily accumulate up to 55 gallons of hazardous waste before transferring it to a regulated storage unit or disposing of it. Lastly, the inspectors did not inspect all handler

TSD areas in 7 of the 26 inspections. For example, at one facility two landfill units were not inspected. At another facility, a land treatment unit, battery acid treatment unit, and a munition detonation area were not inspected.

Documents Not Reviewed or Insufficiently Reviewed

According to the EPA inspection experts, in 19 inspections the observed inspectors either did not review all required handler hazardous waste management documents, records, and plans or did not review them in sufficient detail to correctly determine compliance with the RCRA regulations. These inspections included 8 state, 10 EPA regional and 1 contractor inspections. The RCRA regulations impose requirements on the content of a number of required documents, records, and plans which all facilities are required to maintain to insure that hazardous wastes are being controlled, monitored, and handled in an acceptable manner.

As shown in table 2.4, the documents most often not reviewed, or not reviewed in sufficient detail, were hazardous waste operating inventory records, biennial reports of waste generated, and owner/operator inspection logs and schedules. In at least 6 of the 10 inspections where coverage of the hazardous waste operating inventory record was deficient, records were not reviewed at all. In the 4 remaining inspections the inventory record was reviewed for at least one unit but not all units. In 8 inspections the biennial report on type and volume of waste generated was not reviewed. In the 8 inspections where coverage of inspection logs and schedules was not adequate, the inspectors generally looked at some schedules and logs, but often did not review logs covering all units and emergency equipment, and often did not verify that records were kept for 3 years.

Table 2.4: Statistics on Types of Documents Not Reviewed or Insufficiently Reviewed During the 26 Inspections

Document	No. of applicable handlers	No. of handler documents not reviewed or insufficiently reviewed
Inspection logs and schedules	26	8
Personnel training records	26	5
Hazardous waste operating inventory record	26	10
Waste analysis plan and analyses	26	3
Manifests	26	5
Biennial report	26	8
Contingency plan	26	4
Contingency plan incident reports[a]	6	2
Closure plans	26	5
Post-closure plans[a]	7	0
Groundwater monitoring reports[a]	7	2

[a]Three types of documents are not required for all facilities. Post-closure plans and groundwater monitoring reports are required only for land disposal facilities, of which 7 were included in the 26 inspections observed. Similarly, contingency plan incident reports must be reviewed only if there has been an incident, which had occurred at 6 of the 26 facilities.

Inspection Reports Incomplete or Unclear

The 1981 RCRA Inspection Manual states that all inspection violations must be documented in the inspection report. It also states reports should include a facility description and that clear, accurate reporting is essential for enforcement action. However, according to the EPA inspection experts, in 15 cases the inspection reports either did not include all violations detected by the inspector, did not clearly cite the violations noted during the inspection, and/or did not have a complete description of the facility in the report. Table 2.5 presents the results of the EPA inspection experts' analysis of the inspection reports prepared by the observed inspectors.

Table 2.5: Analysis of Completeness of the 26 Inspection Reports

	State	EPA region	EPA contractor	Total
No. of inspections with violations	10	12	2	24
No. of reports not complete	8	6	1	15
Violations omitted[a]				
No. of reports where violations omitted	3	4	1	8
No. of violations omitted	7	12	1	20
No. of reports where Class I violations omitted	0	4	1	5
No. of Class I violations omitted	0	6	1	7
Report violations unclear				
No. of reports where violations unclear	4	3	0	7
No. of unclear violations	9	8	0	17
No. of reports where Class I violations unclear	4	3	0	7
No. of Class I violations unclear	7	5	0	12
Facility descriptions incomplete				
No. of reports with incomplete facility description	5	2	0	7

[a]Violations omitted are those violations either (1) cited by the inspector during the inspection, or (2) mentioned by the inspector during the exit briefing at the end of the inspection, which were not included in the inspection report. For one EPA region and one contractor inspection report, the EPA inspection experts could not determine if the inspectors had included all violations detected during the inspection in the report because both inspectors did not conduct an exit briefing at the facility

As shown in table 2.5, eight inspection reports were deemed to be incomplete because they did not contain all the violations noted by the inspector during the inspection. Of the 20 violations omitted in these eight reports, 5 were Class I violations. Several of these violations involved unmarked and unlabeled containers. In one instance, a facility had stored approximately 1,000 containers of unknown chemicals. Other violations involved instances of open containers, discrepancies in inspection logs, and improper storage of bulk liquids.

Seven reports were judged to be incomplete because the detected violations were not clearly cited in the inspection report. In these 7 reports a total of 17 violations, including 12 Class I violations, were neither specifically cited as a violation or potential violation, nor clearly identified as a problem needing further evaluation to determine whether it was in fact a violation. For example, one report cited a Class I violation, stating that the closure plan was inadequate. However, the report did not specify what was missing or needed to make the plan adequate. In another

case the inspector reported the failure to analyze waste oil as a Class I violation. Waste oil by itself is not an EPA-listed hazardous waste. The report omitted the fact that the reason the waste oil should have been analyzed was that the owner/operator told the inspector that solvents—which are listed by EPA as hazardous wastes—were regularly added to the waste oil.

In seven inspection reports the facility description was judged to be incomplete. The 1981 Inspection Manual specifies that the facility description include a description of all RCRA-related activities. In 6 of the 7 cases, the inspection report either (1) included no facility description, or (2) failed to state whether the facility description that was either provided by the owner/operator under interim status, included in the final permit, or included in earlier inspection reports, was fully accurate. In one report the facility description did not include a description of the facility's improper disposal of hazardous waste into the sewer. The EPA observer was concerned that this knowledge would be lost for future inspections.

EPA Observers Cite Lack of Training and Experience as Causes of Inspection Deficiencies

We asked the EPA expert inspectors for their opinions as to why the observed inspectors did not do a more thorough and complete job in inspecting the facilities we reviewed. For 19 of the inspections, the observers cited the lack of inspector training and/or experience as a major reason for the incomplete inspections. The 19 inspections were performed by 18 different inspectors including 8 state, 9 EPA regional, and 1 EPA contractor inspector. In one state the same inspector was observed in both state inspections. Other opinions were offered for poor inspector performance, but the above two factors were the two most often cited.

The EPA inspection experts based their opinions on their inspection observations and their reviews of the observed inspectors' academic backgrounds, RCRA training, related work experience, and experience as a RCRA inspector.[1] The EPA inspection experts commented that training was needed, most often in the RCRA regulations and inspection techniques. Three of the 18 inspectors had not taken any RCRA training courses. The other 15 inspectors had taken an average of 5 courses in

[1]Background information was obtained for 23 of the 25 inspectors. For the 2 remaining inspectors, 1 left the agency without providing the information requested, and 1 inspector did not complete a profile as requested.

various subjects such as safety, sampling procedures, and permit writing, but generally had not taken courses focusing strictly on inspections and/or enforcement activities. In 6 cases the observers cited concerns about the inspectors' limited experience as a RCRA inspector. These 6 inspectors were comprised of 4 state, 1 EPA regional, and 1 contractor inspector. Three of the 6 inspectors had less than 10 months experience. The contract inspector had the least experience—3 months.

Comparison of Inspection Reports Also Disclosed Missed Violations in Prior Inspections

We also reviewed inspection files on 42 additional RCRA handlers to determine if violations found and reported during more recent inspections should have been detected and reported earlier. For example, if a facility was found not to have a waste analysis plan in a more recent inspection, we checked prior inspection reports to see if the same violation had been previously detected. If no such violation had been previously reported, we asked the EPA or state regulatory officials if a violation should have been noted before. The 42 handlers whose files we reviewed included 12 land disposal facilities in Regions II, IV, and IX, and 30 treatment and/or storage facilities—5 in each of the 6 states.[2] Our criteria in selecting these facilities is discussed in chapter 1.

In 10 of the 42 cases reviewed, the EPA or state regulatory officials agreed with our analysis that violations were missed during prior inspections. A total of 106 violations were missed in these 10 cases. Using criteria contained in EPA's Enforcement Response Policy, which provides guidance on classifying violations, we determined that 95 of the missed violations—about 90 percent—were Class I violations. EPA regional office and state inspection officials were unable to specifically explain why the 106 violations had been missed. In one case, it was suggested that the inspector may have been unaware of the requirement; in another it was suggested that there was a lack of EPA guidance in the area and the inspection coverage may have been limited due to time and staffing constraints. Table 2.6 presents data on the types of violations missed at these 10 facilities.

[2]Since Nevada had only 3 treatment and storage facilities, 2 generator files were included

Table 2.6: Statistics on Types of Violations Missed Based on Ten Cases Where Inspection Reports Were Compared

Generators	Handlers with missed violations	Violations missed	Class I violations[a]
General requirements	0	0	0
Manifest	1	1	1
Pre-Transport requirements	1	2	2
Record keeping/reporting	2	2	2
Special conditions	0	0	0
Total		**5**	**5**
TSD Facilities[b]			
General facility standards	6	24	15
Preparedness and prevention	0	0	0
Contingency plans and emergency procedures	7	12	12
Manifest system, recordkeeping and reporting	3	5	5
Groundwater monitoring	2	9	9
Closure and post-closure plans	5	15	15
RCRA permit program	2	5	3
Recycling/waste recovery	0	0	0
Use and management of containers	1	2	2
Tanks	2	6	6
Surface impoundments	2	8	8
Waste piles	0	0	0
Land treatment	1	1	1
Landfills	2	14	14
Incinerators	0	0	0
Thermal treatment	0	0	0
Chemical, physical, and biological treatment	0	0	0
Underground injection	0	0	0
Total		**101**	**90**
Total		**106**	**95**

[a]These violations were classified by GAO using EPA's Enforcement Response Policy, which provides guidance on classifying violations. The classifications, therefore, provide only an indication of the extent of serious violations missed.

[b]Financial responsibility is not included because most states and regions routinely review these documents as an administrative function in the central office rather than as part of an inspection. Land disposal restriction requirements are not included because they did not go into effect until fiscal year 1987 so were not applicable for prior inspections.

The specific violations missed varied widely. For example, at one facility, 7 violations were missed, including the fact that the facility had not determined the status of barrels labeled hazardous waste which had

been waiting analysis and disposal since November 1983, and that the facility closure plan was inadequate. Another example involving a land disposal facility disclosed 19 missed violations including (1) ignitable wastes improperly landfilled, (2) no waste analyses, and (3) use of three unapproved waste piles.

Although inspectors missed violations in similar areas in both the 22 inspection observations and the 10 inspection report comparisons, the types of violations found in the inspection report comparisons do not closely parallel the violations missed during the inspection observations. One reason for the differences is that 3 of the 10 facilities were land disposal facilities where compliance with the groundwater monitoring requirements is reviewed more in depth than in the CEI inspections that we observed. Another reason is that many of the missed violations were related to problems with documents. Physical conditions at facilities are more likely to change between inspections and are often less observable than the absence of documents, plans, and records. Thus, missed violations in these latter areas could be more conclusively determined than deficiencies related to a facility's physical conditions.

EPA Headquarters Comments on Inspection Observations and Comparison of Inspection Reports

We discussed the results of our 26 inspection observations and 42 inspection report comparisons with the OWPE Deputy Director at the close of our review. He considered our presentation of the results of the 26 inspection observations and the 42 inspection report comparisons to be fair and probably representative of the conditions in other EPA regions and states. He stated that he was very concerned about the systemic problems revealed by the inspection observations, as well as the specific violations missed at each facility. Furthermore, he said OWPE would prepare a draft options paper which will analyze possible courses of action for improving the completeness and thoroughness of RCRA inspections. The inspection deficiencies will probably be addressed through approaches combining training with an improved oversight system. According to the OWPE Deputy Director, the resource implications of each option identified will be scrutinized closely. As noted in chapter 1, the EPA expert inspector observation reports on the 26 inspection observations were turned over to EPA in July 1987 for review and enforcement action.

Conclusion

Rigorous inspections are the cornerstone of EPA's hazardous waste regulatory compliance program. The 26 inspection observations, along with the 42 inspection report comparisons, however, indicate that many

inspections are not as thorough or complete as they should be. In the inspections we observed, the EPA experts found that 181 violations were missed. Of the violations missed, 122 were Class I violations, which could pose serious threats to human health and environment. Moreover, major handler hazardous waste activities and documents were either not inspected and/or insufficiently reviewed in 23 of the 26 inspections observed. In addition, agency officials agreed that based on the 42 handler inspection report file histories we analyzed, 106 violations were missed in earlier inspections at 10 facilities, including 95 Class I violations.

The EPA expert inspectors evaluating inspector performance for us most often cited a lack of training and experience as the reasons violations were missed or areas were not covered. Our sample of inspections was small in relation to the total number of RCRA inspections performed during our sample period—and the causes for the less than adequate inspector performance may include reasons other than those advanced by EPA's expert inspectors. However, the widespread nature of the problems found, the comments of the OWPE Deputy Director and collaborative evidence developed in chapter 3 of this report with respect to a lack of inspector training and experience, persuades us that EPA and the states do have a problem with the thoroughness and completeness of RCRA inspections—and that a major cause of the problem is untrained and inexperienced inspectors.

As indicated above, chapter 3 elaborates on the inspector training and experience issue. Chapter 4 discusses EPA's efforts to oversee the quality of RCRA inspections—a function considered to be an important internal control in the RCRA hazardous waste regulatory program. When thorough and complete inspections are not performed, needed enforcement actions can not be taken to bring handlers into compliance. Consequently, public health and the environment may not be protected, and owners and operators are able to continue operations in violation of hazardous waste laws and regulations.

Inspector Guidance and Training Program Needed

Guidance and inspector training are key components to ensure that complete and thorough RCRA inspections are performed. Yet neither of these elements is in place in the RCRA program. Although EPA recently issued guidance for conducting groundwater monitoring inspections at land disposal facilities, guidance for determining a facility's overall compliance with all parts of the RCRA regulatory requirements is incomplete. In addition, EPA has neither developed nor implemented an inspector training program although problems with on-the-job training were identified in 1984. RCRA inspections are currently being performed by inspectors who have not completed a program of required inspector training. Varying regional and state inspector qualification standards and recent inspection staff turnover and growth have led to use of personnel with a diverse range of academic backgrounds and experience to perform inspections—all of which increase the importance of guidance and training to ensure that inspections are complete and thorough.

EPA Inspection Guidance Incomplete and Undergoing Revision

EPA inspection guidance concerning how to conduct RCRA inspections consists of guidance issued in December 1986 on how to conduct CME inspections and guidance issued in July 1981 on how to conduct CEI inspections. The CME guidance for evaluating a facility's groundwater monitoring system includes guidance on the scope of and methods for conducting a CME and a checklist for the inspector's use in preparing for and in conducting these inspections.

On the other hand, the 1981 RCRA Inspection Manual which covers CEI inspections is incomplete. Although the 1981 manual was intended to address the entire spectrum of inspection procedures and policies, it focuses on CEI inspections for interim status facilities. Although the manual includes a variety of information about inspections, it currently does not include inspection guidance addressing groundwater monitoring requirements, financial responsibility requirements, inspection procedures for permitted facilities, and a number of new regulatory requirements stemming from the 1984 RCRA amendments.

For example, RCRA groundwater monitoring regulations were promulgated on May 19, 1980, and required owners/operators of landfills, waste piles, surface impoundments, and land treatment facilities to institute a groundwater monitoring system by November 19, 1981. The 1981 manual, however, does not include guidance for inspectors to follow in inspecting groundwater monitoring systems at these facilities. According to the Deputy Director of OWPE, groundwater monitoring inspection guidance probably was not included in the manual because

these regulations, although promulgated prior to the issuance of the manual, did not become effective until after the manual was issued. He told us that he was not associated with the RCRA program at the time the manual was issued and was not sure why these requirements had not been included nor why the manual had not been updated shortly afterwards to include the groundwater requirements. Without these requirements, the guidance manual became incomplete less than four months after it was issued.

Unlike the groundwater monitoring requirements, RCRA financial responsibility requirements were promulgated after the 1981 manual was issued. These requirements were established to assure that funds are available to pay for the cost of closing facilities and the cost for post-closure care as well as compensate third parties for bodily injury and property damage caused by accidents related to a facility's operation. The owner/operator must demonstrate to EPA the ability to pay the estimated amounts. The financial responsibility requirements became effective in July 1982. However, the manual has not been updated to include guidance on how to inspect for compliance with these requirements.

The 1981 manual is also incomplete because it does not address how to conduct inspections at permitted TSD facilities. RCRA permitting standards, issued on varying dates in 1981 and 1982 for differing types of TSDs, contain detailed operating and technical design standards intended to provide greater assurance that the environment is adequately protected at and around these facilities. These detailed requirements are intended to be incorporated in each TSD facility's final permit. They address such areas as requirements for liners underneath facilities to prevent them from leaking waste into underlying groundwater; leak detection, collection, and removal systems; and air quality monitoring.

The November 1984 RCRA amendments, which produced major changes in the regulation and management of both hazardous and solid wastes, also has not been included in the 1981 Inspection Manual. Examples of changes resulting from the 1984 RCRA amendments that affect the scope of inspections include prohibition of land disposal of liquid hazardous waste that is not in sealed containers and the requirement that double liners be installed at surface impoundments. Inspection guidance for these requirements have not been added to the 1981 manual.

Current Guidance and Regulation Development Efforts

OWPE is currently developing guidance and checklists for CEI and other types of RCRA inspections. According to the RCRA Guidance and Evaluation Section Chief, the CEI guidance document will be similar to the 1981 RCRA Inspection Manual and will cover pre- and post-inspection procedures. The CEI guidance document, which is scheduled to be completed by October 1987, will include guidance and checklists on inspecting generators and inspecting both interim status and permitted facilities. It will include groundwater monitoring, financial responsibility, and other requirements resulting from the 1984 RCRA amendments which are not included in the 1981 manual.

EPA is also working on guidance for other types of RCRA inspections, such as case development inspections. As noted in chapter 1, these inspections are more enforcement related—addressing specific compliance issues—and normally result from a CEI or CME inspection. OWPE anticipates issuing guidance for these types of inspections during the first quarter of fiscal year 1988.

As discussed in chapter 1 of this report, Congress, in the 1984 RCRA amendments, directed EPA to issue regulations for RCRA inspections governing the manner of such inspections and the manner in which records and reports of such inspections should be maintained and filed. According to the OWPE Deputy Director, the notice of proposed rulemaking for these congressionally mandated regulations is planned for November 1987 with final action planned for June 1988. The Deputy Director said that by first issuing inspection guidance documents addressing scope and manner of inspections, including reporting and filing, the congressionally mandated regulations eventually issued can be written in more general terms. By issuing general inspection regulations which reference more detailed EPA inspection guidance documents, EPA will have more flexibility in the future for either revising or instituting new waste management controls because, according to the Deputy Director, changes can be more easily made to guidance documents than to regulations. Changing regulations is a more formal process requiring public comment and Office of Management and Budget approval, the officials said. Changing guidance documents is less formal, less time consuming, and much easier to accomplish, they noted.

Neither the inspection guidance nor regulation development efforts have been given priority, according to the Guidance and Evaluation Branch

Chief; because of staff resource limitations and the absence of a deadline in the 1984 RCRA amendments for EPA to complete the RCRA inspection regulations. According to the Branch Chief, EPA has had to give first priority to developing regulations with statutory deadlines.

Inspector Training Program Needed

EPA has no continuing, comprehensive program to develop and maintain inspection skills for its RCRA inspectors. Training provided to RCRA inspectors consists mainly of on-the-job training which involves new employees reading guidance documents and manuals and being apprenticed to experienced inspectors. EPA headquarters identified problems with on-the-job training in 1984 and recommended development of a structured inspector training program in February 1986. EPA has developed a CME inspector training course and is developing a CEI course. According to the Deputy Director, OWPE, EPA is now considering whether to provide these courses on a continuing basis and whether to make them mandatory for all RCRA inspectors. Funding limitations and concerns that enforcement actions may be jeopardized if inspectors have not attended mandatory training are major considerations in making this decision.

Studies Have Identified Training Needs

EPA studies since 1984 have indicated the need for RCRA inspector training. EPA's RCRA Staffing and Training Requirements study, which was conducted in 1984, collected staffing and training information from all 10 EPA Regions and from 45 states. The study found that on-the-job training was the most frequently used method of training and stated that there is no systematic support for ensuring the quality or consistency of on-the-job training. In addition, the study stated that extensive use of experienced inspectors to train new employees will adversely affect productivity.

More recently, a February 1986 OSWER Training Strategy Report recommended development of a structured training program for RCRA inspectors, including minimum mandatory training requirements. This report called for the identification and development of required core training courses, optional courses, and other technical/scientific or programmatic courses needed to assure that RCRA inspectors were properly trained. The strategy report identified the lack of commitment to training and that training activities were inadequate to meet the increasing training needs at the regional and state levels. The report reaffirmed EPA's responsibility for the overall training needs of all EPA and state personnel.

OSWER is also working toward developing an overall training management system for all its hazardous waste program responsibilities—RCRA being one of its program responsibilities. As part of the effort, a draft document entitled OSWER Training Policies and Procedures was issued in April 1987. This draft policy document reiterates that although OSWER is developing an overall training management system, responsibility for initiating training development and for funding training development and delivery, continues to remain with the individual program offices within OSWER. According to the OSWER officials working on the training management system, their responsibilities are to assure that procedures are established whereby training issues and needs can be surfaced and coordinated. They are not responsible for directing or deciding what training should be provided within OSWER. According to these officials, OWPE remains responsible for initiating development and funding of RCRA inspector training.

OWPE Has Not Yet Developed a Comprehensive RCRA Inspector Training Program

OWPE developed and provided a CME inspection course in 1987 to introduce the CME guidance and plans to develop and provide a similar training course in 1988 to introduce the CEI guidance currently under development.

With regard to the CME and CEI training, OWPE officials said they are considering whether, and how, to provide these courses on an on-going basis to regional and state inspectors as part of a continuing RCRA training program and whether to make them mandatory for both new or current inspectors. According to the OWPE Deputy Director, the results of the 26 inspection observations discussed in chapter 2 of this report will be considered in making this decision. Two other factors affecting this decision are (1) limitations on the amount of funds required to implement and maintain an on-going and mandatory training program and (2) follow-on enforcement implications. The Deputy Director stated that EPA is concerned that if an inspector involved in an enforcement case had not received the mandatory training, the lack of training could be used to invalidate EPA's or a state's case.

With regard to the enforcement implication issue, we can understand EPA's concern that it be able to put forth a most convincing and defensible case in bringing enforcement actions against handlers violating RCRA regulations. We also recognize that the enforcement actions can often result in large costs to handlers to achieve compliance and that handlers are apt to vigorously debate costly compliance orders. In our opinion the

presence of a continuing mandatory training program for RCRA inspectors would enhance EPA's ability to enforce compliance rather than jeopardize enforcement actions. Furthermore, it would seem that the EPA's time and cost to pursue enforcement cases would be minimized by avoiding challenges to an inspector's credibility. Assuring that inspectors are afforded the opportunity to attend—and do attend—necessary training is an issue separate and apart from the question of instituting a training program, and is no different for RCRA than for any other EPA enforcement program. Concerns about attendance at training courses can readily be allayed through using a good internal control system designed to ensure all inspectors receive required training.

EPA Inspector Training Policy May Require Mandatory Training

At the same time that OSWER has been working on developing an inspector training policy for its program offices, a parallel effort to develop an agency-wide inspector training policy for all EPA regulatory programs has been initiated at the EPA Administrator level. This effort is in its early stages; however, the final recommendations of the group could influence OWPE's decisions regarding mandatory training for RCRA inspectors.

The need for developing and maintaining the quality of environmental compliance inspectors for all media (air and radiation, water, toxic substances, pesticides, solid waste and hazardous waste) was discussed in an August 1986 memorandum from the Deputy Administrator of EPA. The Assistant Administrator for Enforcement and Compliance Monitoring (who reports directly to the EPA Administrator) was appointed to take the lead in addressing the need for improved agency-wide inspector development and maintenance, including training, and developing an EPA inspection policy.

The Assistant Administrator is chairing an agency-wide work group to discuss goals for an inspector training program and to resolve major design issues for ensuring that inspector training is implemented on an ongoing basis. The group will address (1) the scope and purpose of training and whether training would be mandatory for EPA inspectors, (2) the training of EPA contract and state inspectors, (3) the long-term planning process for cross-media and media-specific training, and (4) the training program management responsibilities for the various EPA offices.

A survey already conducted by the Office of Enforcement and Compliance Monitoring indicated that EPA is far behind four other agencies in

inspector training programs: the Occupational Safety and Health Administration; Nuclear Regulatory Commission; Bureau of Alcohol, Tobacco and Firearms; and the Food and Drug Administration. The survey indicated that these four agencies have already developed and implemented on-going inspector training programs.

As of July 1987, according to a program analyst heading the policy work group, the work group had not decided whether it would recommend mandatory training for inspectors, and whether any training, if recommended, would include generic basic training for all media, as well as program-specific minimum training. If the Office of Enforcement and Compliance Monitoring recommends mandatory inspector training and establishes a deadline for the development of program specific inspector training, and the EPA Administrator adopts the recommendation, OWPE would have to develop and implement a mandatory RCRA inspector training program. A final draft policy on agency-wide training is scheduled to go to the agency for review in January 1988 and to be finalized in March 1988.

Varying Qualification Standards and Experience Increase the Importance of Guidance and Training

Rather than establish RCRA inspector qualification standards, OWPE has left it up to the EPA regions and states to determine the qualifications of personnel needed and used to conduct RCRA inspections. As a result, the EPA regions and states are using personnel with varying backgrounds and qualifications, such as environmental protection specialists, geologists, and hydrologists, to do RCRA inspections. The EPA regions and states are also experiencing high turnover as well as staff growth, which has affected the overall experience levels of inspectors. In light of the varying inspector qualification standards and the growth and turnover of inspectors, inspection guidance and training are even more critical to ensure that inspectors have the necessary expertise to determine compliance with the various parts of the RCRA regulations and are able to conduct complete and thorough inspections.

Inspector Qualifications

At the time of our review, OWPE had not established RCRA inspector qualification standards or requirements and had no data on the background or qualifications of EPA regional and state personnel performing RCRA inspections. According to the Chief of OWPE's Guidance and Evaluation Branch, OWPE is reluctant to develop inspector qualification standards because it could result in states having to hire inspectors with increased

credentials. This could lead to increased inspector salaries; consequently, states might petition EPA for additional program grant funds to meet this requirement.

In the absence of inspector qualification standards we asked EPA regional and state RCRA inspection chiefs for their opinions as to the background and experience qualifications needed by inspectors to perform RCRA inspections. The officials generally believed a bachelor's degree was needed in one of the sciences or engineering. They also believed that CME inspectors should have degrees in either geology, hydrogeology, and/or hydrology.

We also analyzed educational background information on the personnel performing RCRA inspections in the regions and states we reviewed. Of the 293 inspectors for whom we obtained information, 283 (97 percent) had a bachelor degree or higher, and 221 (75 percent) had a degree in either engineering, biology, geology, or environmental science. One inspector had an associate degree and 9 inspectors had no degree. Data on inspector education levels and academic disciplines for EPA regional and state inspectors as of September 30, 1986, is presented in appendix I.

Degrees in engineering, biology, environmental science or studies, and geology were the most predominant among the inspectors. Further, 48 of 59 CME inspectors had degrees in geology or geological engineering and would, therefore, appear to satisfy the requirement that a professional experienced in geology be part of the CME staff as called for by EPA in its CME inspection guidance. According to EPA regional and state inspection chiefs, CME inspections are typically performed by a geologist or hydrologist or a team led by a geologist or hydrologist.

Although those performing RCRA inspections appear to have the necessary academic prerequisites for this task, the EPA regional and state inspectors' backgrounds do vary considerably. This could raise a question as to whether there is reasonable assurance that each inspector is qualified to perform all parts of an inspection. For example, an inspector with no background or a limited background in chemistry would likely have more difficulty in reviewing waste analysis plans and identifying incompatible wastes. Absent qualification standards, one way of reducing the possible adverse impacts on inspection thoroughness and completeness stemming from situations such as this would be to provide continuing mandatory inspector training aimed at establishing uniform inspection expertise.

Inspection Staff Turnover and Growth

According to the OWPE Deputy Director there has been high turnover among RCRA inspectors, which has reduced the experience levels of the inspection staffs. We analyzed data on inspector turnover in the EPA regions and states included in our review. As shown in table 3.1, the average state inspector turnover for fiscal years 1985 and 1986 was 17 and 19 percent, respectively. On the other hand, inspector turnover at the EPA regional levels was higher than that of the states—35 percent in fiscal year 1985 and 26 percent for fiscal year 1986.

Table 3.1: EPA Regional and State Inspector Turnover

Fiscal Year 1985

EPA regions	Number of inspectors 10/1/84	Transfer/ promoted	Retired/ resigned/ terminated	Total lost	Percent turnover
II	12	6	2	8	67
IV[a]	•	•	•	•	•
V	8	0	0	0	0
VI	7	1	0	1	14
VIII	8	0	1	1	13
IX	8	5	0	5	63
Totals	**43**	**12**	**3**	**15**	**35**
States					
California[b]	•	•	•	•	•
Louisiana	11	1	1	2	18
Nevada	3	0	0	0	0
New Jersey	17	0	2	2	12
New York	29	3	2	5	17
Texas	39	1	7	8	21
Totals	**99**	**5**	**12**	**17**	**17**

Fiscal Year 1986

EPA regions	Number of inspectors 10/1/85	Transfer/ promoted	Retired/ resigned/ terminated	Total lost	Percent turnover
II	16	2	2	4	25
IV	24	4	4	8	33
V	27	5	0	5	19
VI	13	0	4	4	31
VIII	10	0	1	1	10
IX	7	3	0	3	43
Totals	**97**	**14**	**11**	**25**	**26**
States					
California[b]	•	•	•	•	•
Louisiana	12	1	0	1	8
Nevada	3	0	0	0	0
New Jersey	23	3	3	6	26
New York	37	7	2	9	24
Texas	55	3	6	9	16
Totals	**130**	**14**	**11**	**25**	**19**

[a]Region IV was not able to provide data for fiscal year 1985 because limited records were kept regarding turnover

[b]California could not provide inspector turnover data. The California Program Planning and Operations Chief estimated that approximately 20 percent occurred in both years.

The reason most often cited by the EPA regional and state RCRA Inspection Chiefs for inspector turnover was low salary. Other reasons were better career opportunities elsewhere, heavy workload, and burnout. As shown in appendix II, starting salaries ranged from $14,390 to $29,172. The lowest EPA regional inspector starting salary was $14,390. The state inspector starting salaries ranged from $16,368 in Louisiana to $35,674 in California. We did not attempt to establish what role salary has actually played as a cause for turnover because this issue was outside the scope of the questions asked by the Chairman. However, there are many other socioeconomic factors to consider when comparing salaries, such as employment opportunities and cost of living. We did not review or analyze these factors because of the additional time that would have been needed.

In addition to replacing inspectors lost through turnover, considerable inspection staff growth has occurred in some of the EPA regions and states. According to the OWPE Deputy Director, the need for additional inspectors has increased largely because of new inspection requirements brought about by the 1984 RCRA amendments, and also because more

states have received program authorization to administer the RCRA program. As shown in table 3.2, since the beginning of fiscal year 1985, the number of inspectors has grown from 56 to 100 (79 percent) in the six regions and from 115 to 217 (89 percent) in the six states we reviewed. The inspection staff grew in all locations except Region IX, where the inspection staff was temporarily reduced from 8 to 6 because two inspectors were assigned to EPA's Groundwater Monitoring Task Force. Many EPA regions and states use personnel to perform inspections along with other duties related to enforcement and the permit process.

Table 3.2: EPA Regional and State Inspection Staff Growth

	Number of inspectors[a]		Growth[b]	
EPA Regions	**9/30/84**	**9/30/86**	**Number**	**Percent**
II	12	14	2	17
IV	13	25	12	92
V	8	31	23	288
VI	7	14	7	100
VIII	8	10	2	25
IX	8	6	(2)	(25)
Totals	**56**	**100**	**44**	**79**
States				
California	16	54	38	238
Louisiana	11	12	1	9
Nevada	3	3	0	0
New Jersey	17	34	17	100
New York	29	37	8	28
Texas	39	77	38	97
Totals	**115**	**217**	**102**	**89**

[a]Includes both part-time and full-time inspectors.

[b]Parentheses denote decrease.

Inspector turnover, coupled with the increase in the total number of RCRA inspectors, has resulted in an inspection force with limited inspection experience. Approximately 55 percent of the inspectors in the EPA regions and states included in our review had been inspectors for less than 2 years. Average inspector experience ranged from 14.5 months in California to 55.8 months in Region VIII, with an overall average experience level of 27.3 months. Appendix III presents data on EPA regional and state inspector experience levels. With less experienced inspectors, guidance and training become even more important in assuring that thorough and complete inspections are performed at RCRA handlers.

Conclusions

Guidance and inspector training are key components of an effective inspection program. They are even more important given the widely varying inspector qualification requirements and limited inspector experience levels brought about by high inspector turnover and growth rates. Because of higher priorities and funding limitations, comprehensive inspector guidance documents covering all aspects of the RCRA regulatory program have yet to be completed, and a comprehensive mandatory training program for RCRA inspectors has yet to be developed. However, EPA recently has made some progress toward these objectives. Guidance was issued and related training provided with respect to performing detailed RCRA groundwater monitoring inspections (CMEs) in late 1986. EPA is currently in the process of developing inspection guidance and related training for conducting the more comprehensive inspections (CEIs) at RCRA facilities. After this guidance is issued, EPA plans to issue the congressionally mandated inspection regulations called for in the 1984 RCRA amendments.

EPA's efforts to develop long-needed inspector guidance and the associated training to apply the guidance are positive steps towards improving the thoroughness and completeness of RCRA inspections. However, because of limited resources and concerns over the enforceability of inspection violations discovered by an inspector that may not have had training, EPA has not yet decided whether to establish an ongoing comprehensive and mandatory RCRA training program for EPA and state inspection staffs. We believe that the inspection observations and other evidence discussed in chapter 2 concerning deficiencies in current inspections supports the need for a continuing and mandatory training program, including appropriate controls to insure inspectors receive the required training.

Recommendations

Given the potentially adverse effect of using inspectors with limited inspection experience and varied background qualifications to perform RCRA inspections, we believe that current guidance and continuing and mandatory training are necessary to achieve a consistent level of inspector performance. We therefore recommend that the Administrator, EPA:

- ensure that inspection guidance and regulations on how to conduct inspections are issued as scheduled; and
- develop and implement a continuing and mandatory RCRA inspector training program.

Limited Oversight of RCRA Inspections

Inspection oversight can be an effective tool to assure that inspections are thorough and complete and to identify systemic inspection program weaknesses. Oversight of RCRA inspections is limited, however, and little information exists on the thoroughness and completeness of RCRA inspections. The EPA regions are not overseeing state RCRA inspections in accordance with oversight goals established by EPA headquarters. Further, EPA headquarters is neither overseeing inspections being conducted by its regional offices nor exercising oversight over contractor inspections. EPA headquarters has eliminated the requirement for EPA regions to conduct a target number of state oversight inspections in fiscal year 1988. EPA headquarters has also eliminated the requirement that state inspection quality be addressed in headquarters reviews of regional office performance. According to both headquarters and regional EPA officials, the lack of staff resources is a major reason for limiting inspection oversight activities. However, observations of state, EPA regional, and EPA contractor inspections discussed in chapter 2 indicate that increased, rather than decreased, RCRA inspection oversight is warranted.

Regional Offices Exercising Limited Oversight Over State RCRA Inspections

Although EPA has an oversight system in place to monitor state RCRA inspections, it has not been effectively implemented. In addition to not conducting the target number of oversight inspections set by EPA headquarters, regional oversight inspectors are not identifying violations being missed by state inspectors nor documenting state inspection program inadequacies in their inspection reports. Further, the regions are not consistently addressing state inspection performance in all state grant performance reviews.

EPA Regional Offices Are Not Overseeing Required Number of State Inspections

The EPA regional offices are responsible for overseeing state performance in administering the RCRA program. The major tools regions use to oversee a state's compliance monitoring and enforcement activities are analyses of routine reporting data, file reviews, record reviews, and oversight inspections. Of these tools, oversight inspections are especially important because they are the only tool the regions have which provides first hand information on the thoroughness and completeness of state RCRA inspections.

According to the RCRA Evaluation Guide, oversight inspections are intended to determine if states are

- following inspection and compliance monitoring procedures,

- detecting all Class I violations, and
- providing adequate training to their RCRA inspection staff.[1]

In addition, information gathered during oversight inspections is useful to detect systemic problems related to the quality of states' compliance monitoring and enforcement programs.

Since fiscal year 1985, EPA has set a target for the EPA regions to conduct oversight inspections for 10 percent of state RCRA inspections. The guidance to the regions is not explicit as to whether the 10-percent target is an overall target that applies to all state inspections or applies to each type of RCRA inspection. OWPE's Deputy Director, however, said that although not explicitly stated as such, the 10-percent target applies to each type of RCRA inspection. For example, the regions should observe 10 percent of each state's CEI inspections as well as 10 percent of the state's CME inspections.

Our review of regional performance showed that few of the regions were meeting the 10-percent target—either on an overall inspection basis or on a type of inspection basis. One region, EPA Region IX, had not conducted any oversight inspections. As shown in table 4.1, the regions we reviewed that were conducting oversight inspections met the 10-percent target set by headquarters in only 3 of 26 states.

[1]The RCRA Evaluation Guide issued by OSWER provides guidance to the EPA regions for overseeing state performance, including oversight inspection documentation, and how to conduct mid-year and end-of-year grant reviews of state performance.

Table 4.1: Oversight Inspections Performed in Each State in Fiscal Year 1986

	Total no. of inspections	Total no. of oversights	Percent
Region II[a]			
New Jersey	532	31	5 8
New York	855	45	5.3
Region IV			
Alabama	148	2	1 4
Florida	546	5	0 9
Georgia	502	7	1 4
Kentucky	494	10	2 0
Mississippi	95	10	10 5
North Carolina	474	10	2 1
South Carolina	272	8	2 9
Tennessee	419	7	1 7
Region V			
Illinois	493	9	1 8
Indiana	322	5	1 6
Michigan	942	12	1 3
Minnesota	321	5	1 6
Ohio	388	19	4 9
Wisconsin	214	9	4 2
Region VI[b]			
Arkansas	65	9	13 8
Louisiana	108	6	5 6
New Mexico	33	3	9 1
Oklahoma	57	2	3 5
Texas	906	18	2 0
Region VIII			
Colorado	217	16	7 4
Montana	94	8	8 5
North Dakota	46	15	32 6
South Dakota	136	10	7 4
Utah	229	4	1 7
Region IX - No oversight inspections were performed.			

[a]Region II data included New York and New Jersey only Data not available for Puerto Rico, and Region II performs all inspections in the Virgin Islands.

[b]Region VI statistics are for CEI and CME inspections performed at TSDs. Not included are 391 CEIs performed at generators which Region VI could not list by state. According to Region VI officials, no oversights were conducted during the 391 generator CEIs.

In terms of the types of inspections, the regions came closer to meeting the 10-percent target for CEI inspections at TSD facilities. For example, as

shown in table 4.2, the 5 regions performing oversights were able to meet the 10-percent target for state TSD CEI inspections in 12 of 26 states. With regard to state CME inspections, the regions were able to meet the target in 9 of the 26 states. The poorest performance in meeting the 10-percent target was in the area of CEI inspections at hazardous waste generators. In only 3 of the 26 states was the target met—all three were in Region VIII.

Table 4.2: Percentage of Oversight Inspections Performed in Each State by Type of Inspection

	CEI Inspections		
	Generator	TSD facility	CME inspections
Region II[a]			
New Jersey	1.6	9.8	28.8
New York	1.8	12.3	60.0
Region IV			
Alabama	9	3.1	0
Florida	0	7.6	0
Georgia	0	9.5	0
Kentucky	0	18.2	0
Mississippi	2.4	22.0	0
North Carolina	.5	12.9	0
South Carolina	0	15.7	0
Tennessee	.3	17.6	0
Region V			
Illinois	0	2.3	7.5
Indiana	0	6	22.2
Michigan	.3	3.8	12.5
Minnesota	1.4	3.1	0
Ohio	.7	6.5	60.0
Wisconsin	2.9	6.8	0
Region VI[b]			
Arkansas	•	11.7	40.0
Louisiana	•	7.8	0
New Mexico	•	9.7	
Oklahoma	•	1.9	25
Texas	•	1.7	10
Region VIII			
Colorado	9.7	5.2	20
Montana	0	13.1	0
North Dakota	35.7	32.0	0
South Dakota	16.1	1.3	0
Utah	2.7	1.3	0

[a]Oversight percentages over 9.4 percent were considered to have met the 10-percent target for oversight inspections.

[b]Region VI could not provide generator inspection statistics by state. Data provided by EPA headquarters showed a total of 391 generator inspections conducted by Region VI.

More detailed statistics on oversight inspections are presented in appendix IV.

The lack of inspection staff resources was cited as a major reason for not meeting the 10-percent state inspection oversight target. This was the main reason given by the Region IX RCRA Hazardous Waste Branch Chief for not doing any oversight inspections. RCRA officials in the other five regions also indicated that staff resources precluded them from meeting the target. With regard to the low number of state CEI generator oversight inspections, regional RCRA officials further told us that they were not performing oversights at these facilities because they considered generators to either be of low priority or did not understand that the oversight requirement applied to these facilities.

Regions Either Not Detecting or Not Documenting Inspection Problems

The regions reviewed used one of two methods to document the results of state oversight inspections. Regions IV and VI required their oversight inspectors to complete either a state or regional inspection checklist and an inspection report based on the oversight inspections, while Regions II, V, and VIII required their inspectors to prepare a separate oversight evaluation form. The inspectors were instructed to note any problems with the completeness and thoroughness of state inspections in their reports. (As stated previously, Region IX did not perform oversight inspections.)

Very few oversight inspection checklists and/or reports included any critical comments. For example, we found no mention of inspection deficiencies in a sample of 7 of the 59 Region IV checklists and/or accompanying inspection reports for the fiscal year 1986 oversight inspections. Our review of 6 of the 38 Region VI oversight inspection trip reports disclosed that 3 of the 6 reports made no mention of inspection deficiencies, and 3 made only very brief comments that might be viewed as critical. For example, one report included comments that the inspector had only been with the state for 2 months and was unfamiliar with the inspection checklist, but that the inspector was attentive and persistent in his inspection. Another report mentioned that the state inspectors seemed to hurry through the inspection probably due to their familiarity with the site. Similarly, of all available RCRA oversight evaluation forms for fiscal year 1986 prepared by Regions II, V and VIII, only 14 of 137

had any critical comments regarding inspector performance, and these comments were generally brief.[2]

RCRA inspection chiefs and oversight inspectors in Regions IV and VI told us they were reluctant to document problems with state inspection quality because this practice might impair EPA/state relations. In addition, they said that either problems were not typically found during oversight inspections, or the problems that were identified were minor problems and did not need documenting. The regional inspectors consider discussions with state inspectors during or at the end of an oversight inspection sufficient to correct any problems that might be observed, they said.

With regard to improper reporting, in Region VIII we noted that regional oversight inspectors observed at least 10 partial CEI state inspections but did not note in their reports that the inspections were partial inspections. Five of these inspections were reported by the states to the region as full inspections. The Region VIII Waste Management Division Director and the RCRA Management Branch Chief told us they were not aware that the states were performing partial CEIs and reporting them as full CEIs. The Branch Chief said that he would remind the states and his inspectors that a complete CEI inspection must be performed in order to report the inspection as a CEI, and that the inspectors would also be instructed to note on the oversight evaluation forms if a state conducted a partial rather than a full inspection.

In addition to inadequate reporting, EPA regional oversight inspectors may not be detecting all inspection deficiencies. For example, 2 of the 12 state inspections we observed as part of our 26 inspection observations were also being observed by regional inspectors as oversight inspections. During the two inspections the EPA regional oversight inspectors either overlooked or did not notice that the state inspectors failed to note a number of RCRA regulatory violations. In these 2 oversight inspections, the EPA inspection experts accompanying GAO detected 21 violations, including 16 Class I violations, that the regional oversight inspectors did not identify—or at least were not communicated to the state inspector

[2]We reviewed all oversight evaluation forms in Region V and available oversight evaluation forms in Regions II and VIII. In Region II we reviewed information only on New York and New Jersey oversight inspections. For New York we reviewed information on 15 oversight inspections performed during July through September 1986. The first nine months of forms for fiscal year 1986 could not be located along with 12 forms from July through September. For New Jersey we reviewed 13 forms for the period June through December 1986 because no forms were available for October through May 1986. In Region VIII we reviewed 48 of 53 forms because 5 forms could not be located

at the time of the inspection nor included in the oversight inspectors' report to the state.

Grant Reviews and Program Reviews Do Not Address State Inspection Quality as Required

EPA has also not ensured that the quality of state inspections is addressed as required (1) in the semiannual grant review reports on state performance prepared by the EPA regions and provided to EPA headquarters and the states, or (2) in the program reviews of regional performance prepared by EPA headquarters. The grant reviews and the program reviews are mechanisms for assessing and reporting on performance, including state inspection quality, according to EPA's National Criteria for a Quality Hazardous Waste Management Program.

The mid- and end-of-year grant reviews of state performance are required to address whether inspections are thorough and properly documented. Our analysis of the fiscal year 1986 grant reviews for the six states included in our review indicated that state inspection quality was not always addressed by the regional offices. For example,

- Region IX did not address inspection quality in either the mid- or end-of-year Nevada and California grant reviews;
- Region II addressed New Jersey's inspection quality in both mid- and end-of-year reviews but addressed New York's inspection quality only in the end-of-year review; and
- Region VI addressed inspection quality in both the mid-and end-of-year reviews for Texas and Louisiana.

According to the Region IX Waste Programs Branch Chief, state inspection quality was not addressed in the Region IX grant reviews because the Region was not aware of the requirement.

Program reviews provide an opportunity for EPA headquarters to comment on how well the regions are overseeing state-conducted inspections. The scope of EPA's Program Review varies from year to year. The reviews cover the regions' implementation of both RCRA and the Comprehensive Environmental Response, Compensation, and Liability Act programs, and the review teams are staffed by EPA headquarters personnel, including OWPE staff.

In fiscal year 1986 program review reports for the six regions in our review, there were no comments regarding the thoroughness and completeness of state RCRA inspections. The 1986 RCRA regional program review instructions specifically called for the review teams to determine

if the regions were effectively reviewing the quality of state inspections and whether regional oversight procedures were adequate. With respect to Region IX, we would have expected the headquarters program review report to note that the region was not performing state oversight inspections. We discussed this issue with the Director of OWPE's RCRA Enforcement Division, who told us that he was aware that state inspection quality was not being covered in the program reviews. The Director stated that during these reviews, with a limited amount of time, only limited information on each environmental program can be covered. He added that to date headquarters has placed more emphasis on meeting inspection target requirements than on inspection quality.

With regard to the reporting of oversight inspections, we also found that EPA headquarters had not established a system for the regions to report on regional state oversight inspections in its nationwide RCRA data base. Prior to 1987 there was no separate category for reporting state oversight inspections in EPA's Hazardous Waste Data Management System. We brought this to OWPE's attention in June 1986 and separate reporting was required beginning in fiscal year 1987.

EPA Headquarters Not Overseeing Regional Inspections

OWPE is not exercising oversight over RCRA inspections being conducted by its regional offices. According to Director of OWPE's RCRA Enforcement Division, OWPE lacks the resources to oversee regional inspection quality and in turn relies on the regions to assure the quality of their own inspections.

We found that only two of the regions reviewed were periodically observing and evaluating inspections performed by their own inspectors. The RCRA inspection chiefs in Regions IV and VIII told us that they periodically evaluate inspections conducted by their inspectors. In Region IV the goal is to observe inspectors twice a year; Region VIII tries to observe its inspectors once a year. In Regions II, V, VI, and IX, the RCRA inspection chiefs said it is rare for an experienced inspector to be observed to assure that he/she is performing complete and thorough inspections. After the initial on-the-job training provided to new inspectors, during which inspectors are observed, inspectors are not periodically observed again. According to the Region II, V, VI, and IX inspection chiefs, the regions rely on reviews of inspection reports rather than inspection observations to assess how well inspectors are performing.

As discussed in chapter 2, 12 of the 26 inspections we observed were inspections being performed by EPA regional inspectors. Based on our

observations of these inspections, the completeness and thoroughness of EPA regional inspections needs improvement, and oversight of EPA regional inspections is needed. As shown in table 2.1 in chapter 2, 64 violations were missed in 10 of the 12 EPA regional inspections, including 42 Class I violations. Eleven of the 12 EPA regional inspections were not complete because all required areas were not inspected and/or all documents were not reviewed or sufficiently reviewed.

The performance of the EPA regional oversight inspectors in the two EPA regional oversight inspections we observed also suggests that the EPA regional inspectors need closer supervision. As discussed earlier in this chapter, the 2 EPA regional oversight inspectors either did not detect or communicate a number of inspection deficiencies to the state inspectors. For example, in one inspection, 11 violations were missed; waste generation points, satellite accumulation areas and emergency equipment were not inspected; and 4 documents were not reviewed or reviewed sufficiently. None of these deficiencies, however, were pointed out to the inspector or included in the oversight inspector's report.

Limited Oversight of Contractor Inspections

Four of the six EPA regions used contractors to conduct CEI and CME inspections in fiscal year 1986. The regions have not been required to perform contractor oversight inspections, and few such oversight inspections have been conducted. However, based on the results of the two contractor inspections we observed, and other information on contractor inspections in EPA Regions VI and IX, there is reason to be concerned that complete and thorough inspections are not being conducted by the contract inspectors.

Contractor Oversight Activities

Regions use contracts awarded at headquarters to augment EPA regional and state inspection resources. Two national contracts with numerous subcontractors were used by the EPA regions in fiscal year 1986 to perform inspections. Regions initiate use of contractor services by preparing work assignments describing the scope of services required. The work assignments are approved by an OWPE project officer and then by an EPA headquarters contract officer. The regional work assignment managers are responsible for assuring that quality inspections are performed, but oversight inspections are not required. According to data provided by regional and/or contractor officials, and as shown in table 4.3 for the six regions, a total of 78 contractor inspections were performed in Regions IV, V, VI and IX under 7 work assignments during fiscal year 1986.

Table 4.3: Fiscal Year 1986 Statistics on EPA Oversight of Contractor Inspections in Six Regions

Region handler located	No. of work assignments	No. of inspections		No. of oversights		Total	
		CEI	CME	CEI	CME	Inspections	Oversights
IV	1	0	7	0	0	7	0
V	3	0	15	0	0	15	0
VI	1	0	4	0	0	4	0
IX	2	52	0	2	0	52	2
Totals	**7**	**52**	**26**	**2**	**0**	**78**	**2**

As table 4.3 shows, only Region IX performed oversight inspections to assess the quality of the contractor inspections. Under one work assignment, Region IX conducted oversight inspections for 2 of 14 inspections; the results of those 2 were not documented. However, according to the RCRA oversight inspector, two problems were found: (1) the contractor inspectors were not familiar with the RCRA regulations in both inspections, and (2) personnel safety requirements were not observed in one of the inspections. Region IX did not perform any oversights for the 38 inspections conducted by another subcontractor under the second work assignment. These 38 inspections were of federally owned or operated TSD facilities. According to the Region IX work assignment manager, the region relied on a review of the inspection reports prepared by the contractor to assure quality. Similarly, Region IV, V, and VI primarily use reviews of the contractors' inspection reports as their means to monitor the adequacy of contractor inspections, according to regional officials.

Indications Are Contract Inspections Not Thorough or Complete

Both the results of the two EPA contractor inspections we observed and information on contractor inspections performed in Regions VI and IX raise questions regarding the quality of contractor inspections and the accuracy of how contractor inspections are reported by the EPA regions. One EPA region has already discontinued use of contractors to perform CME inspections because of the time required to adequately monitor contractor performance.

As shown in table 2.1 in chapter 2, 21 violations were missed by contract inspectors in the two contractor inspections we observed, including 16 Class I violations. In addition, according to the EPA expert inspector critiquing contract inspector performance, neither inspection was complete. In one inspection, waste generation points and emergency equipment in the generation area were not inspected. In the other inspection, an industrial waste treatment plant, waste generation points, and emergency equipment were not inspected, and six types of documents were

not reviewed, including inspection schedules and logs, hazardous waste operating inventory record, hazardous waste incident reports, waste analysis plans and analyses, closure plan, and groundwater monitoring reports.

According to the Acting Administrator for the Groundwater Protection Division of Louisiana's Department of Environmental Quality, Louisiana was unable to use 5 of the 7 fiscal year 1985 CME contractor inspection reports as a basis for taking enforcement actions. The reports could not be used because (1) they were completed up to a year following the inspection and, in many cases, the violations were no longer applicable due to changes in facility operations, (2) important information in the files was overlooked, resulting in incorrect conclusions, (3) decisions reached in regard to violations or problems were not consistent with state policy or negotiations previously initiated, and (4) inspections were not performed according to state regulations. For these reasons, Louisiana felt it was necessary to repeat the inspections. An EPA Region VI official told us that further use of contractors to perform CME inspections in fiscal year 1987 and beyond is not planned in Region VI because of the amount of staff resources that would be needed to adequately monitor contractor performance.

In addition to the two oversight inspections conducted in 1986, Region IX performed 7 contractor oversight inspections between January and March 1987. A summary report from the Region IX Inspection Chief to the Region IX RCRA Branch Chief dated April 27, 1987, stated that the contract inspectors did not adequately address the compliance status of the facilities inspected. Deficiencies cited included the failure of the contractor inspectors to identify and/or inspect all TSD units and the failure to include a complete listing of potential violations in their inspection reports. The summary report also said the contractor inspectors were not familiar with RCRA, apparently had little or no training in inspection techniques, asked leading questions, and asked the wrong questions as a result of interpreting the regulations incorrectly. Further, some inspectors had never performed a prior RCRA inspection, according to the report. The summary report concluded that the inspections were inadequate and stated that these problems had been discussed with representatives of the contractor. It stated that lack of training in both the RCRA regulations and inspection techniques was the underlying problem.

In our opinion, oversight of the quality of contractor inspections is important because the quality of inspections directly affects enforcement capabilities. In order for EPA to be successful in any enforcement

action taken to achieve compliance, the underlying inspection on which the enforcement action is based must be complete, thorough, and well-documented. EPA's contract administration manual stresses the importance of contract monitoring to assure that performance meets the requirements of the contract.

EPA Headquarters Reducing State Oversight Emphasis

According to the Deputy Director, OWPE, EPA is planning to reduce its emphasis on overseeing the quality of state RCRA inspections. This action is being taken because of limited resources, higher program priorities (such as groundwater monitoring), and the maturing of the RCRA program. He said that the EPA Assistant Administrator for OSWER preferred to place primary emphasis on the more technical areas of the program.

OWPE has deleted the requirement that the regions target 10 percent of state inspections for oversight in the 1988 RCRA Implementation Plan. The 1988 Plan states that oversight inspections are important tools for ensuring the quality of state inspections but does not specifically task the regions with performing oversight inspections. The plan allows the regions to determine their own oversight inspection requirements. According to the OWPE Deputy Director, even though the 10-percent oversight target has been deleted, the regions are still expected to oversee state inspections. In addition to the deletion of the 10-percent oversight target, we also noted that current EPA headquarters instructions for conducting fiscal year 1987 and 1988 regional program reviews no longer require the headquarter teams reviewing the region's activities to address how well the regions are assessing state inspection quality.

At the conclusion of our review we discussed the results of our 26 inspection observations with the Deputy Director of OWPE. At that time we pointed out that in view of the inspection deficiencies noted in these inspections—coupled with the facts that inspection guidance is incomplete, a long-needed RCRA inspector training program has yet to be implemented, and that the RCRA inspection force is relatively inexperienced—strongly suggests that there should be increased, rather than decreased, emphasis on inspection oversight. The Deputy Director said that the results of our observations represent new information that OWPE and OSWER will have to evaluate and consider in making future decisions on the direction the agency should take in designing a quality assurance system for the RCRA inspection program.

Conclusions

Although EPA has identified oversight inspections as an important and effective tool to assure that inspections are thorough and complete and to identify systemic inspection program weaknesses, our review of oversight activities conducted at the regional levels and by EPA headquarters indicates that little oversight is being exercised over RCRA inspections. In addition, where oversight inspections were conducted, few deficiencies were documented. Furthermore, in the oversight inspections we observed the performance of the oversight inspectors was less than satisfactory. According to officials responsible for oversight activities, a lack of resources and higher priority RCRA program needs are the primary reasons for not affording inspection oversight more attention.

EPA's fiscal year 1988 guidance to its regions may further reduce the effort devoted to overseeing the quality of inspections. The 10-percent state inspection oversight target requirement has been dropped, along with required inspection quality coverage in regional program reviews. These requirements are being deleted because of higher priorities and resource limitations. We believe this is unfortunate given our inspection observations and other evidence that suggests serious problems with the thoroughness and completeness of RCRA inspections. Without such oversight there is little assurance that inspections are serving their purpose to detect noncompliance which threatens public health and the environment.

It is important that EPA headquarters develop and implement a system to oversee the thoroughness and completeness of RCRA inspections being conducted by its regional offices, the states, and EPA contract inspectors. Our inspection observations discussed in chapter 2 indicates that RCRA inspectors—whether they be EPA regional, state, or contract inspectors—are not performing thorough and complete RCRA inspections.

OWPE's reevaluation of the quality assurance systems needed to assure that thorough and complete RCRA inspections are being performed is a positive step in assessing oversight needs. In the meantime, however, we further believe that until OWPE is assured that the quality of inspections is adequate to ensure that RCRA regulations are being met—and public health and the environment are being reasonably protected—EPA headquarters needs to reinstate its prior oversight target regarding 10-percent oversight of state RCRA inspections and its requirement that state RCRA inspection performance be addressed in regional program reviews. Furthermore, it is important that state inspection quality be addressed in regional office reviews of state performance under RCRA grants. Once EPA has better information on the level of inspection performance,

reductions in the number of oversight inspections and in other oversight activities may be possible. Any reductions should then be tailored to the level of performance rather than made across the board. Last, it is important that the results of oversight inspections be well-documented and reported to EPA and the states so that systemic problems can be identified and corrected, and for possible use in inspector training programs discussed in chapter 3.

Recommendations

To assure that thorough and complete inspections are conducted and that information on inspection quality is available for use in determining the frequency of future oversight inspections, and in developing and assessing inspector training needs, we recommend that the EPA Administrator

- reinstate the target requirement that regions annually oversee 10 percent of state RCRA inspections and ensure that state performance in conducting these inspections is addressed in state grant reviews performed by the regional offices;
- reinstate the requirement that regional oversight of state RCRA inspections be evaluated and reported in headquarter's regional program reviews; and
- develop and implement a system to provide routine oversight over EPA regional and EPA contractor inspections, as well as documenting and reporting the results to EPA headquarters.

Inspector Education Levels and Academic Disciplines as of September 30, 1986[a]

	CEI inspectors[b]		
Educational level	**EPA Region**	**State**	**Totals**
Doctorate degree	1	3	4
Masters degree	22	48	70
Bachelor degree	27	130	157
Associate degree	0	1	1
No degree	4	5	9
Totals	**54**	**187**	**241**
Disciplines			
Engineering			
Chemical	7	23	30
Civil	9	14	23
Environmental	2	5	7
Engineering (General)	2	1	3
Mechanical/nuclear	1	1	2
Metallurgical	0	1	1
Engineering science	1	0	1
Biology			
Biology (General)	4	26	30
Biological sciences	0	3	3
Biology/chemistry	0	6	6
Marine/aquatic biology	0	3	3
Microbiology	0	2	2
Biological oceanography	0	1	1
Biology/environmental	0	2	2
Environmental science, studies, conservation, toxicology, toxicology/ veterinary science, or policy analysis and planning	5	30	35
Geology	6	16	22
Public health, health science, environmental health, environmental/ occupational health, or industrial health	3	15	18
Chemistry	2	8	10
Geography/geography/ecosystems	1	5	6
Science	1	1	2
Zoology	0	5	5
Physics	2	0	2
Other	4	14	18
Totals	**50**	**182**	**232**

(continued)

	CEI inspectors[b]		
Educational level	**EPA Region**	**State**	**Totals**
Doctorate degree	0	1	1
Masters degree	10	12	22
Bachelor degree	21	15	36
Associate degree	0	0	0
No degree	0	0	0
Totals	**31**	**28**	**52**
Disciplines		31	2859
Geology	19	23	42
Chemistry	1	0	1
Soils science or pathology	0	2	2
Environmental or earth science	1	1	2
Chemical engineering	1	0	1
Geological engineering	6	0	6
Metallurgical engineering	0	1	1
Civil engineering	1	0	1
Hydrology	0	1	1
Biology	1	0	1
Physics	1	0	1
Totals	**31**	**28**	**59**

[a]Table does not include education levels and disciplines for the 20 Region IV CEI inspectors and 4 Texas inspectors for whom information was not available.

[b]Inspectors that perform both CME and CEI inspections are included under both categories. There were 5 EPA regional inspectors and 2 state inspectors that performed both types of inspections.

EPA Regional and State Inspector Salary Data for Fiscal Year 1986 by Position Title

Position title	Low salary	High salary
EPA		
Chemical engineer	$18,710	$41,105
Environmental engineer	18,710	41,105
Civil engineer	24,358	41,105
Nuclear engineer	24,358	41,105
Compliance inspector	17,824	41,105
Environmental protection specialist	14,390	41,105
Environmental scientist	14,390	41,105
Physical scientist	14,390	41,105
Geologist	14,390	41,105
Hydrologist	14,390	41,105
Life scientist	14,390	41,105
States		
California		
Associate hazardous materials eng.	35,674	43,032
Hazardous materials specialist	22,176	39,192
Special investigator I	24,864	133,456
Louisiana		
Environmental protection specialist	16,368	32,028
Geologist	26,052	51,324
Nevada		
Environmental engineer	19,095	36,742
Environmental management specialist	19,904	24,628
New Jersey[a]		
Environmental engineer	21,523	36,716
Environmental specialist	18,634	36,716
Geologist	20,544	36,716
New York		
Sanitary engineer	21,227	49,300
Engineering geologist	21,227	42,229
Senior engineering technician	16,909	21,557
Solid waste management specialist	20,066	31,239
Texas		
Biologist	21,021	34,424
Engineering technician	21,021	34,424
Environmental quality specialist	19,695	43,303
Geologist	23,972	40,560
Engineer	29,172	36,738
Hydrologist	29,172	46,293

[a]Excludes Supervisory Environmental Technician position used by New Jersey because New Jersey has only one inspector in this position and plans no other use of personnel in this position as RCRA inspectors.

EPA Regional and State Inspector Experience Levels as of September 30, 1986

	Months Experience							
EPA Region	**0 to 11 mos.**	**12 to 23 mos.**	**24 to 35 mos.**	**36 to 47 mos.**	**48 to 59 mos.**	**60 or more mos.**	**Total number of inspectors**	**Average months exper.**
II	2	8	1	2	0	1	14	24 6
IV	12	4	2	3	1	3	25	21 8
V	5	10	4	5	1	6	31	31 1
VI	1	8	2	2	0	1	14	21.9
VIII	0	1	1	1	1	6	10	55 8
IX	0	3	1	1	1	0	6	28.8
Totals	**20**	**34**	**11**	**14**	**4**	**17**	**100**	
Percent	20.0	34.0	11 0	14.0	4.0	17.0	100	28.9
States								
CA	29	9	9	5	0	2	54	14 5
LA	1	2	1	4	1	3	12	42.3
NV	0	0	2	1	0	0	3	33.7
NY	13	8	9	2	5	0	37	22.7
NJ	8	11	5	2	4	4	34	28 4
TX	25	13	10	2	6	17	73[a]	33.8
Totals	**76**	**43**	**36**	**16**	**16**	**26**	**213**	
Percent	35.7	20.2	16.9	7.5	7.5	12.2	100	26.6
EPA Region and State Combined Weighed Average Inspector Months Experience								27.3

[a]Texas did not have experience data on four inspectors who left between September 30, 1986, and the time of our review.

Fiscal Year 1986 Statistics on EPA Oversight Inspections of State Inspections in 6 Regions

	CEI								
	Generator			Facility			CME		
	Inspections	Oversight	Percent	Inspections	Oversight	Percent	Inspections	Oversight	Percent
Region II[a]									
New Jersey	306	5	1.6	205	20	9 8	21	6	28 6
New York	617	11	1.8	228	28	12.3	10	6	60 0
Region IV									
Alabama	116	1	.9	32	1	3.1	0	0	0
Florida	470	0	0	66	5	7 6	10	0	0
Georgia	413	0	0	74	7	9.5	15	0	0
Kentucky	432	0	0	55	10	18.2	7	0	0
Mississippi	42	1	2.4	41	9	22.0	12	0	0
North Carolina	393	2	.5	62	8	12.9	19	0	0
South Carolina	203	0	0	51	8	15.7	18	0	0
Tennessee	379	1	.3	34	6	17.6	6	0	0
Region V									
Illinois	197	0	0	256	6	2.3	40	3	7 5
Indiana	126	0	0	178	1	6	18	4	22 2
Michigan	734	2	.3	184	7	3.8	24	3	12 5
Minnesota	287	4	1.4	32	1	3.1	2	0	0
Ohio	152	1	.7	231	15	6.5	5	3	60 0
Wisconsin	138	4	2.9	73	5	6.8	3	0	0
Region VI[b]									
Arkansas	•	0	0	60	7	11.7	5	2	40.0
Louisiana	•	0	0	77	6	7.8	31	0	0
New Mexico	•	0	0	31	3	9.7	2	0	0
Oklahoma	•	0	0	53	1	1.9	4	1	25 0
Texas	•	0	0	876	15	1.7	30	3	10.0

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