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Regulating Government

Terry Davies and Kate Probst

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Abstract

Federal, state, and local governments are major polluters of the environment. They account for more than 7% of SO₂ air pollution emissions and more than 5% of all NO₂ air emissions in the United States. Public entities are more likely than private ones to be in violation of the Clean Water Act, and they account for two-thirds of all major facilities in significant noncompliance with the act. Department of Energy nuclear sites are the worst hazardous waste problems in the nation. A lack of adequate data makes it difficult to fully characterize the extent of pollution caused by government agencies and to compare the performance of the public and private sectors. There are many reasons why government pollution is difficult to regulate. The paper discusses political dimensions, legal problems, resource constraints, psychological dimensions, and public opinion. Further research is urgently needed, and the paper delineates areas that require more investigation.

Key Words: pollution control, federal facilities, regulation, intergovernmental relations

Preface

Many people contributed to this report. Much of the original data was collected by Adam I. Lowe, then a research assistant at Resources for the Future (RFF). Rebecca White, a graduate student at the University of Texas, contributed the important information on the Clean Air State Implementation Plan process. María Reff and several other research assistants also were very helpful. John Mankin and Katherine Hobbs did most of the hard work of typing and interpreting the authors' scrawls. Marilyn Voigt applied her excellent editing skills, and Eric Tischler also provided very helpful editing. Drafts of the report were reviewed by Derry Allen, Blair Bower, Rob Brenner, Steve Brown, Dallas Burtraw, Matt Hale, Craig Hooks, Allan Mazur, Vern Myers, Paul R. Portney, Larry Weinstock, Jim Werner, and Jack Wilson, none of whom bear any responsibility for the contents of the report. The reviewers' comments greatly improved the work. A few of them will not like the final report any better than they liked the draft, but we hope they will recognize that we did take their comments seriously and did try to respond to their criticisms.

Our intention was never to produce a comprehensive report on the vast subject of intergovernmental regulation. We have tried to produce an outline of the subject and a catalyst for further exploration. We hope we have succeeded.

Terry Davies

Kate Probst

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Chapter 1. Introduction

Most of the attention in the environmental field is focused on the impact of regulations on private companies. Yet, many federal, state, and local government activities also are regulated under the nation's environmental laws. The extent to which governmental agencies are complying with environmental rules, whether they are significant polluters, and the implications for governmental organizations of major changes in environmental statutes are all issues that get much less attention on Capitol Hill or in the press.

There are at least four reasons why the issue of government organizations as polluters is important. They range from the very concrete to the somewhat abstract: the large amount of pollution contributed by governmental entities; the idea that government should set an example for the private sector; the need for environmental government agencies to influence the policies and behaviors of non-environmental government agencies; and, finally, the potential incompatibility of the government itself performing functions (for example, producing electric power, delivering the mail) and its ability to use regulation to achieve larger societal goals (e.g., controlling pollution).

The amount of pollution contributed by governmental entities is so large that a case can be made that governments, collectively, are the largest polluters in the United States. For example, the contamination problems at former weapons production sites (now the responsibility of the U.S. Department of Energy (DOE)) exceed in risk, magnitude, and cost any other hazardous waste problem.¹ On the U.S. Environmental Protection Agency (EPA) list of major water pollution violators, public entities account for more than half the violations. Public power plants and public vehicles are significant air polluters (see Chapter 2).

¹ See Congressional Budget Office, *Cleaning Up the Department of Energy's Nuclear Weapons Complex* (Washington, D.C., 1994); U.S. Department of Energy, Office of Environmental Management, *Estimating the Cold War Mortgage* (Washington, D.C., 1995); Katherine N. Probst and Michael H. McGovern, *Long-Term Stewardship and the Nuclear Weapons Complex: The Challenge Ahead* (Washington, D.C.: Center for Risk Management, Resources for the Future, 1998).

The need for federal and state environmental agencies to influence the policies of non-environmental agencies arises in part from the need to control and eliminate the pollution problems noted above. But there is a larger reason—the future of environmental quality in the United States is likely to be determined as much by the policies of the U.S. Department of Agriculture, DOE, state public utility regulators, and the U.S. Department of Transportation as by any regulations issued by EPA. The diffuse nature of many current pollution problems and the unpopularity and limitations of command-and-control regulation mean that future progress in environmental improvement will depend heavily on influencing sectoral policies in energy, agriculture, and transportation. For example, dealing with climate change is much more likely to depend on encouraging the adoption of new energy technologies than on regulating power-plant smokestacks. How the goals of environmental legislation can be incorporated into the goals or programs of other agencies is a question to which no good solution is available at the present time. An understanding of how governments try to regulate each other should aid the creation of policies that address this need.

Finally, there is a philosophical but practical problem which cannot be ignored. To the extent that regulations cannot effectively influence the policies and activities of governmental entities, there will be an incompatibility between regulatory goals on the one hand and having activities performed by government agencies on the other. This will come as no surprise to those familiar with the negative effect of state enterprises on the environment in Russia and other socialist nations. Our study should shed some light on whether this incompatibility is intractable, or whether there are mechanisms to modify the conflict.

Although the issue of government as polluter, as well as the issue of intergovernmental relations in the environmental arena, are important topics, few studies of these topics exist.² This report is a preliminary effort to look at the first issue, and provide a framework for thinking about the policy import and implications. Because our goal is to conduct a scoping study — rather than an exhaustive analysis — we have been selective in the levels, activities, and programs examined. Pollution control is only one type of government-to-government interaction that takes place, and the other interactions also deserve more attention than they have received.

² Notable exceptions are James Q. Wilson and Patricia Rachal, “Can the Government Regulate Itself?”, *The Public Interest*, vol. 46, Winter 1977, pp.3-14; and Robert F. Durant, *When Government Regulates Itself: EPA, TVA, and Pollution Control in the 1970's*, (Knoxville: University of Tennessee Press, 1985).

Our hope is the study will lead to the more in-depth analysis that the topic deserves. Its intent is to identify problems and questions, not to formulate solutions. We want to get policymakers and the public to understand there is a problem, and we want researchers to expend more effort on analyzing the nature and causes of the problem. Because the leadership of Resources for the Future (RFF) shares our view of the importance of the issue, the study has been paid for by general support funds from RFF.

Outline of Report

One of the goals of this study is to provide the reader with the broad outline of the issue, as well as some facts to document its importance. We have relied on existing sources of data, primarily from EPA. In Chapter 2 we provide information about the number of government entities, at all levels of government, that are regulated under the major EPA programs. Where data are available, we also provide information on governments' contribution to emissions. We look at whether government entities are more or less likely than their private counterparts to be in compliance with environmental requirements, and also at whether government sources are inspected more or less frequently than private sources.

In Chapter 3 we examine the dynamics of government regulating government. We look, specifically, at a number of issues that play an important role in the nature of these interactions and interrelationships. Issues addressed include: political dynamics, legal issues, resource constraints, psychological dimensions, public support and beliefs, and, finally, the tangled web of intergovernmental relationships. Finally, we present our recommendations for further research.

Chapter 2. Government as Polluter

For several decades the American public has been conditioned to think of pollution control as a morality play in which large private corporations are the villains. The black-hat companies are kept in check by the efforts of virtuous citizen organizations who prod the white-hat government agencies to bring the polluters to heel.

This "morality play" view of pollution control contains a good deal of truth, but also is misleading in important respects. For example, it doesn't take into account that government agencies can wear black hats as well as white. To a remarkable—but usually not remarked upon—extent, government agencies contribute to pollution.

Before proceeding directly to government's contribution to pollution, it is necessary to address the problem of data availability. Government data on pollution are, in general, woefully inadequate.³ To effectively address the question of government's contribution to pollution requires data that are classified by the source of pollution, and such data are rare. We have used the best information we can find, but in every case it is less than satisfactory, and this requires burdening the reader with numerous caveats and cautions. We apologize for this, but believe it is better to provide warnings than to present misleading information. In some cases we were not able to find any relevant quantitative data and have noted these instances.

Air Pollution

The Aerometric Information Retrieval System/AIRS Facility Subsystem (AIRS-AFS) is EPA's national database that contains compliance information for all major stationary sources of air pollution. AIRS-AFS has at least three important limitations: it does not cover minor sources; it does not cover mobile sources, such as cars and trucks (these mobile sources account for the majority of certain kinds of pollution); and the data tend to be out of date. Although EPA has attempted to improve the AIRS-AFS data, more than one-third of the estimates available in 1999 were based on pre-1995 data.⁴ Despite these limitations, the AIRS-AFS data are the best available for our purposes, and it is better than most of the other databases with which we worked.

Table 2-1 shows the percentage of air pollution covered by AIRS-AFS that can be attributed to government sources. It also shows the percentage of total emissions covered by AIRS-AFS and the percentage of government emissions attributable to the Tennessee Valley Authority (TVA). Based on these data, we can draw several conclusions. First, government sources do not seem to be a major source of air pollution, relative to private sources—at least for the sources and pollutants covered by the limited data. An important exception is sulfur dioxide (SO₂) emissions, where government sources account for almost 7.7% of emissions, and, to a lesser extent, nitrogen dioxide (NO₂), where government sources accounts for more than 5% of emissions.

³ See J. Clarence Davies and Jan Mazurek, *Pollution Control in the United States: Evaluating the System*, (Washington, D.C.: Resources for the Future, 1998).

⁴ AIRS-AFS emissions data, retrieved 5/13/99 from U.S. EPA, *AIRSData - Source Year Report*, available at: <http://www.epa.gov/airsdata/sources.htm>.

Table 2-1 — Share of AIRS-AFS Estimated Criteria Air Pollutant Emissions Generated by Government Owned or Operated Plants

		Government Percent of Total AIRS-AFS Data ¹	TVA Percent of Government	AIRS-AFS Data Percent of 1997 National ²
CO	carbon monoxide gas	0.7%	33.1%	5.9%
NO ₂	nitrogen dioxide gas	5.2%	82.6%	32.7% ³
SO ₂	sulfur dioxide gas	6.8%	88.1%	81.5%
VOC	volatile organic	0.6%	10.3%	11.3%
PT	particulate matter	1.8%	61.6%	n/a
PM10	particulate matter	0.9%	16.6%	1.7%
Pb	lead particles	0.5%	0.0%	43.6%

Source: U.S. EPA, *AIRSDATA Source Reports*, AIRS-AFS emissions data retrieval tool, data pulled 5/13/99.

Notes:

1. To identify government owned or operated facilities using the *EnviroFacts* table AFS_AFS_PLANT_DESC, filed GOVT_FACILITY_CODE, the *AIRSDATA* field FACILITY_ID was matched to a combined field generated from the *EnviroFacts* table AFS_AFS_PLANT_GENERAL, fields NEDS_PLANT_ID, COUNTY_CODE, and a FIPS (Federal Information Processing Standard) state code for the appropriate STATE_ABBR.

2. Total 1997 national emissions, including stationary, area, mobile, and biogenic sources are from the EPA, *National Air Pollutant Emission Trends Update, 1970-1997* (December 1998).

3. The *National Air Pollutant Emission Trends Update* reports all nitrogen oxides (NO_x), while AIRS-AFS estimates are for NO₂ only. The percentage given is thus likely to be an underestimate of AIRS-AFS plants' contribution to total NO₂ and NO_x emissions.

4. Volatile organic compounds (VOCs) are not criteria pollutants, but they are precursors of criteria pollutant ozone (smog).

A second conclusion is that TVA accounts for the major portion of government air pollution. TVA operates 11 large power plants and more than 50 smaller ones. The large TVA power plants emit 4.3% of all SO₂ emissions in the United States (4.6% of stationary source emissions) and 2.2% of all NO_x emissions (4.3% of stationary source emissions). Not

surprisingly, these emissions are roughly proportional to TVA's share of power generation—4.3% of nationwide electricity generation.⁵

More detailed information on government's contribution to SO₂ and NO_x emissions is available from data on EPA's acid rain program. The SO₂ part of the acid rain program is divided into two phases, the first phase covering large power plants, the second phase covering smaller ones. Phase I began in 1995 with 263 of the largest, most polluting power plants. An additional 2,107 smaller power plants are covered in Phase II of the program, which began in 2000. Figure 2-1 shows the number of these units operated by government. All 63 of the federally owned units are owned by TVA. The federal units constitute almost 10% of the Phase I units. Municipal-owned plants account for 10.5% of the Phase II units. Figure 2-2 shows SO₂ and NO_x emissions from the plants covered by the acid rain program. About 15% of SO₂ emissions in 1997 came from government sources; more than 20% of NO_x emissions came from government sources.

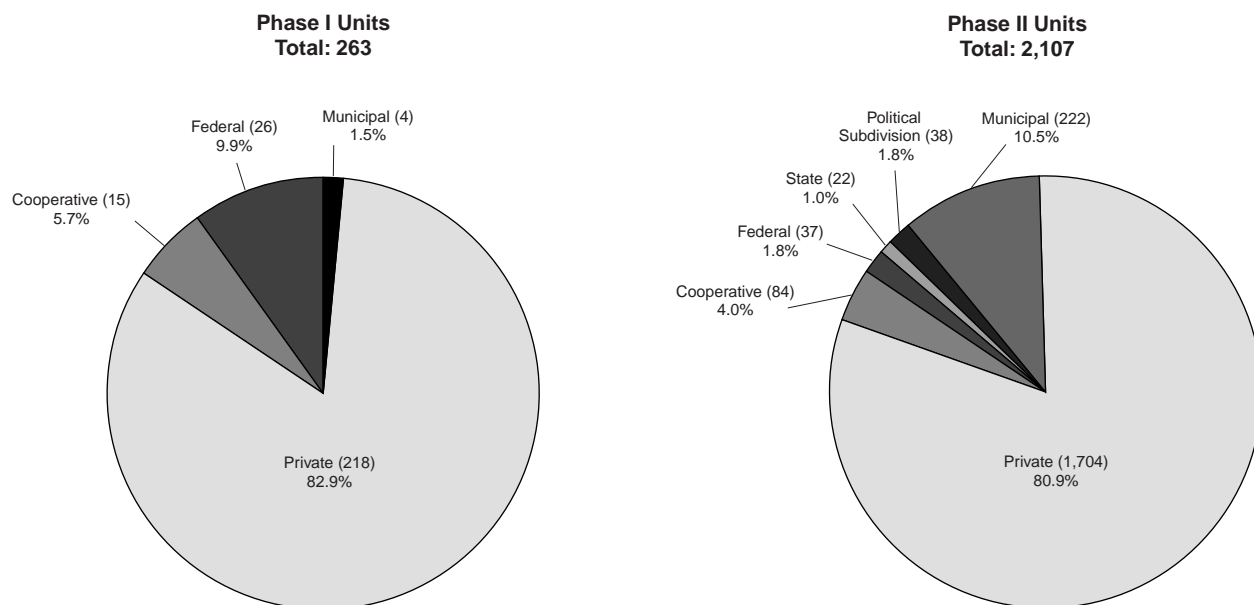
With respect to major or "criteria" air pollutants other than SO₂ and NO_x, we do not have adequate information to evaluate government's contribution. The AIRS-AFS data indicate that the contribution is small, but that data cover only a small part of total emissions, so they are not a reliable basis for conclusions.

According to the Federal Highway Administration, in 1997 the federal government owned 461,000 cars, trucks, and buses, and state, county, and municipal governments owned an additional 3,212,000 vehicles.⁶ These figures do not include military vehicles and also probably

⁵ TVA emissions data extracted from EPA, "Table B2: Plant-by-Plant Summary Data Organized by State" in *Acid Rain Program: Emissions Scorecard 1997*, EPA-430-R-98-020 (Washington, D.C., January 1999); National emissions data from EPA, *National Air Pollutant Emission Trends Update, 1970-1997*, EPA 454/E-98-007 (Research Triangle Park, N.C., December 1998).

⁶ Ward's Motor Vehicle Facts and Figures 1999, p. 43.

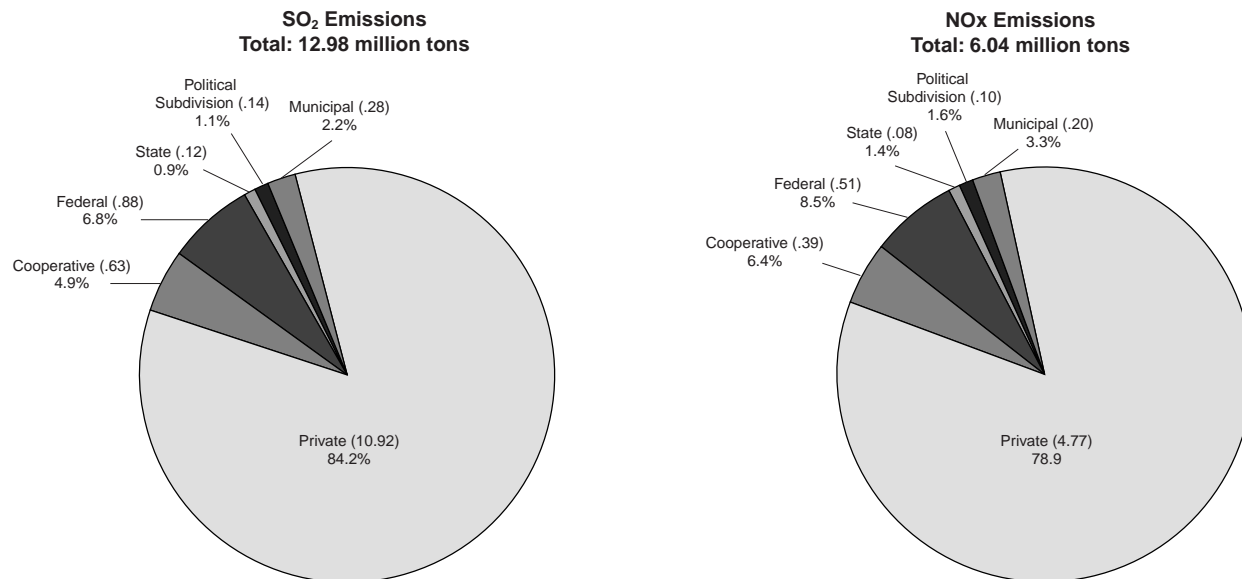
Figure 2-1 – Operators of Units Required to Participate in Phase I and Phase II of the Sulfur Dioxide Reaction Program



Source: EPA, “Table B1: Unit-by-unit data for all Phase I and Phase II units,” *Acid Rain Program Emissions Scorecard 1997* (January 1999).

Note: There are no Phase I units operated by “state” or “political subdivision” entities. The Phase I chart includes only the core units required to participate by the Clean Air Act amendments of 1990. For information regarding “opt-in” units and Phase II units voluntarily participating in Phase I as “substitution” or “compensating” units, see Section 3—Compliance Strategies. Not all plants operated during 1997—seven Phase I and 473 Phase II plants were either not operating (retired in a long-term shutdown, or merely didn’t operate during 1997) or not yet functional (future units planned or under construction or new enough to produce some emissions, but not yet commercially operate.)

Figure 2-2—1997 Air Emissions from All Units Affected by the Acid Rain Program (Millions of Tons)



Source: EPA, “Table B1: Unit-by-unit data for all Phase I and Phase II units,” *Acid Rain Program Emissions Scorecard 1997* (January 1999).

Note: Includes emissions from all units required to participate and from seven private “opt-in” units enrolled in program at the end of 1997.

exclude the U.S. Postal Service fleet. The Postal Service had 202,000 vehicles in 1996.⁷ Although these are large numbers, they still account for less than 2% of U.S. motor vehicles.

The Toxics Release Inventory (TRI), which estimates releases to the environment of a number of toxic pollutants from large manufacturing facilities, requires federal facilities to report their emissions. (TRI coverage is generally limited to certain specific SIC codes. However, Executive Order 12856 (August 3, 1993) requires federal facilities to report their TRI emissions regardless of their SIC codes.) TRI data from 1997 indicate that federal facilities are minor contributors to toxic releases, accounting for only 0.18% of total production-related waste and

⁷ 1998 Comprehensive Statement on Postal Operations, p.23.

only 0.29% of total on-site releases to the environment. These figures covered only the pollutants on the TRI list and the limited types of facilities required to report to the TRI.⁸

However, a recent EPA study⁹ indicates that public facilities are major sources of certain toxic substances. For example, municipal landfills account for 84% of 1, 1, 2, 2-tetrachloroethane air emissions and almost 20% of the vinyl chloride emissions. Municipal waste combustors (i.e., incinerators and waste-to-energy plants) account for almost 40% of nationwide dioxin emissions and 20% of mercury emissions.

Water Pollution

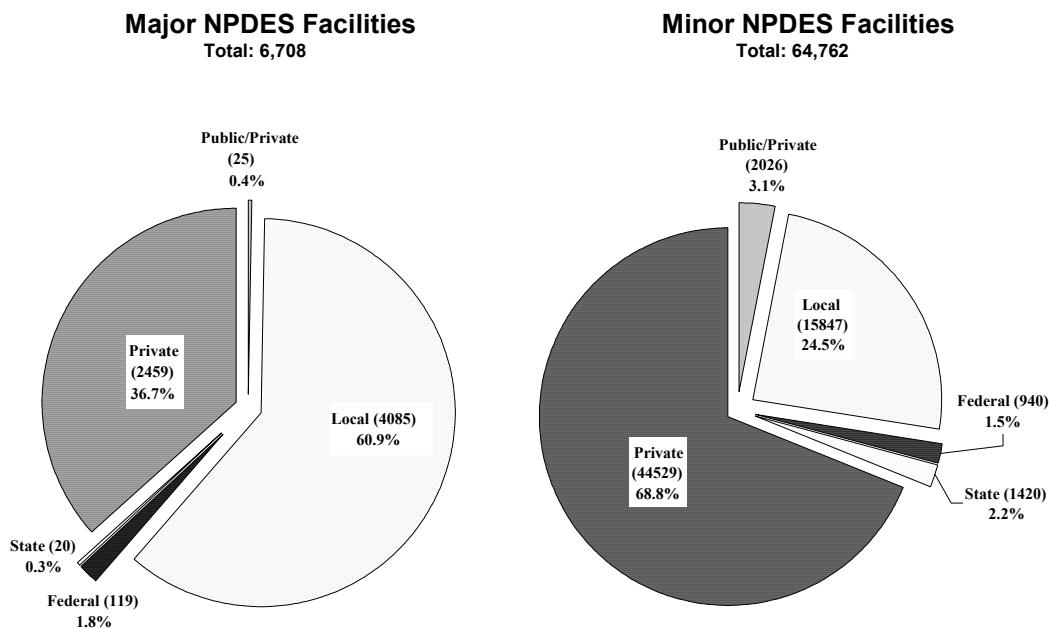
The National Pollution Discharge Elimination System (NPDES), created by the Clean Water Act, is a mandatory federal permitting system for point source discharges into U.S. waters. Permits generally set discharge limits for specific pollutants, and include monitoring and reporting requirements and other provisions related to the water quality goals for the affected water body.

NPDES facilities are categorized as major or minor, based upon the size of flow or potential to have significant impact on water quality. As of 1998, there were 6,708 major facilities and 64,762 minor facilities. Figure 2-3 shows the ownership of facilities with NPDES permits. More than 60% of major facilities are publicly owned – almost all of them sewage treatment plants (POTWs – publicly owned treatment works).

⁸ EPA, 1997 Toxics Release Inventory, May 1998, Tables 2-2, 2-18, and 10-1.

⁹ EPA, *1990 Emissions Inventory of Forty Potential Section 112(k) Pollutants*, (Research Triangle Park, North Carolina, May 21, 1999).

Figure 2-3 – Facilities with NPDES Permits



Source: *EnviroFacts* database system, data pull 12/18/98. Data derived from table PCS_PERMIT_FACILITY, fields TYPE_OF_OWNERSHIP and MAJOR_DISCHARGE_INDICATOR. Only includes facilities coded “Active” in the field INACTIVE_CODE.

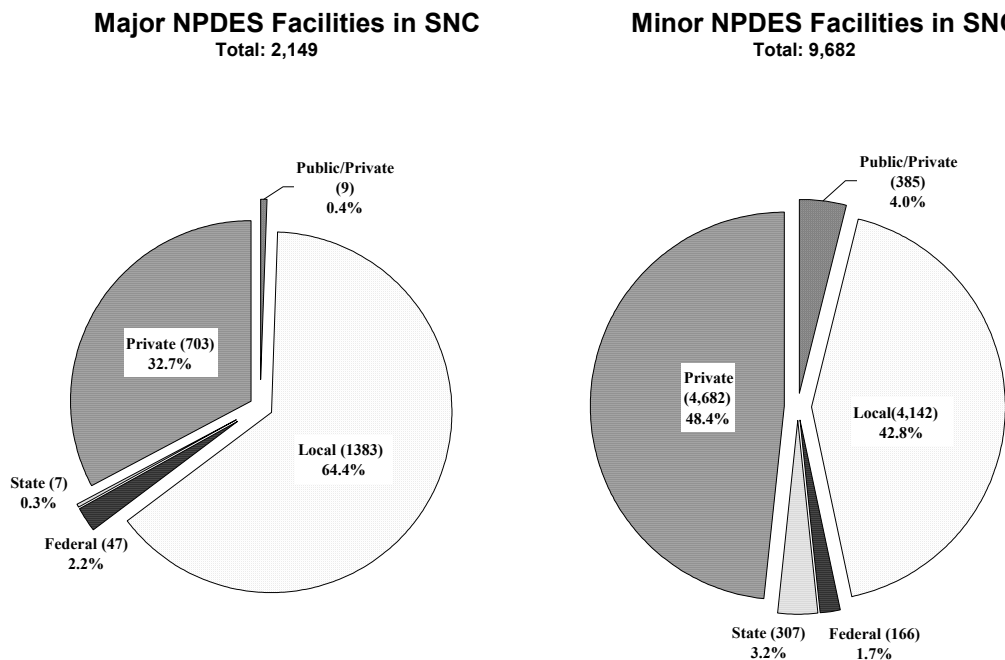
Notes: “Private” category includes 11 “major” and 3,562 “minor” facilities with no TYPE_OF_OWNERSHIP code.

POTWs are often classified as major facilities due to their high flow rate and tendency to be one of the larger point sources on any particular water body. Most sewage treatment systems are owned by local governments or by local or regional government authorities, although it is important to note that they are increasingly operated by private firms under contract to the government owner. Three-quarters of NPDES permits issued to facilities in SIC Code 4952 (sewerage systems) are owned by government entities. Most government facilities with NPDES

permits, especially major ones, are sewage systems. Of the 4,249 government (and public-private) facilities with major NPDES permits, 201 (less than 5%) are not sewage systems (SIC code aside 4952). Of the 20,233 government facilities with minor NPDES permits, 6,870 (more than one-third) are not sewage systems.

Public entities are more likely than private ones to be in violation of the Clean Water Act, and they comprise the majority of significant water polluters. To target enforcement resources, EPA maintains a list of facilities that are considered to be in “significant noncompliance.” Facilities can be in significant noncompliance because they repeatedly exceed the effluent limits in their permits, they fail to report, or they violate compliance schedules. State, federal, and local government facilities accounted for two-thirds of all major facilities in significant noncompliance during at least one quarter in fiscal year 1998 and made up more than half of the minor facilities so classified (see Figure 2-4).

Figure 2-4 – NPDES Permitted Facilities in Significant Noncompliance (SNC) During at Least One Quarter, FY 1998



Source: Freedom of Information Act (FOIA) Request #RIN-001060-99, answered February 17, 1999, for FY1998 Significant Non-Compliance (SNC) data listing.

Notes: 80 SNC records with no ownership data were matched to TYPE_OF_OWNERSHIP data in the *EnviroFacts* PCS_PERMIT_FACILITY table. Private category includes remaining facilities (2 “Major” and 51 “Minor”) with no TYPE_OF_OWNERSHIP code in either database.

The proportion of major government facilities in noncompliance was slightly greater than their proportion of all permitted facilities. POTWs comprised 61% of all major facilities and 64% of the major facilities in significant noncompliance. The difference is much more dramatic for minor facilities. POTWs accounted for 25% of all minor permitted facilities but 43% of all minor facilities in significant noncompliance. This indicates a significant problem in enforcing the conditions of water quality permits against smaller public entities.

It would be useful to know whether the government portion of actual pollution loads is the same as the government percentage of all facilities. However, although some data are available on individual loadings, the data are not available to compute the actual effluent loads contributed by government-owned facilities.

An increasing proportion of pollution in recent years has come from nonpoint sources, such as runoff from fields and streets. Government activities also are major sources of this type of water pollution. Activities such as timber harvesting and grazing on public lands, drainage from abandoned mines on public lands, recreation facilities, road construction, and modification of streams all contribute to nonpoint pollution. Some of these activities are carried out by private parties on public land, while others are done directly by government agencies.

A recent report from the U.S. General Accounting Office (GAO) observes: “The federal government owns about 20% of the land area in the lower 48 states, and this land is concentrated in the West. As a result, many western watersheds are dominated by federally owned land and the associated federally managed or authorized activities that may cause nonpoint source pollution. According to the nonpoint source program managers that we interviewed in five western states, many water quality problems in their states result from one or more of these federal activities.”¹⁰

No data are available on government’s contribution to nonpoint pollution. There is no doubt, however, that the contribution is significant.

Drinking Water

Data on drinking-water quality is complicated by the large number of drinking water systems (about 170,000) in the United States, the diversity of size and types of systems, and the uncertain quality of the data that are available. The Safe Drinking Water Act categorizes water systems by function rather than by whether they are publicly or privately owned. The three regulated categories are:

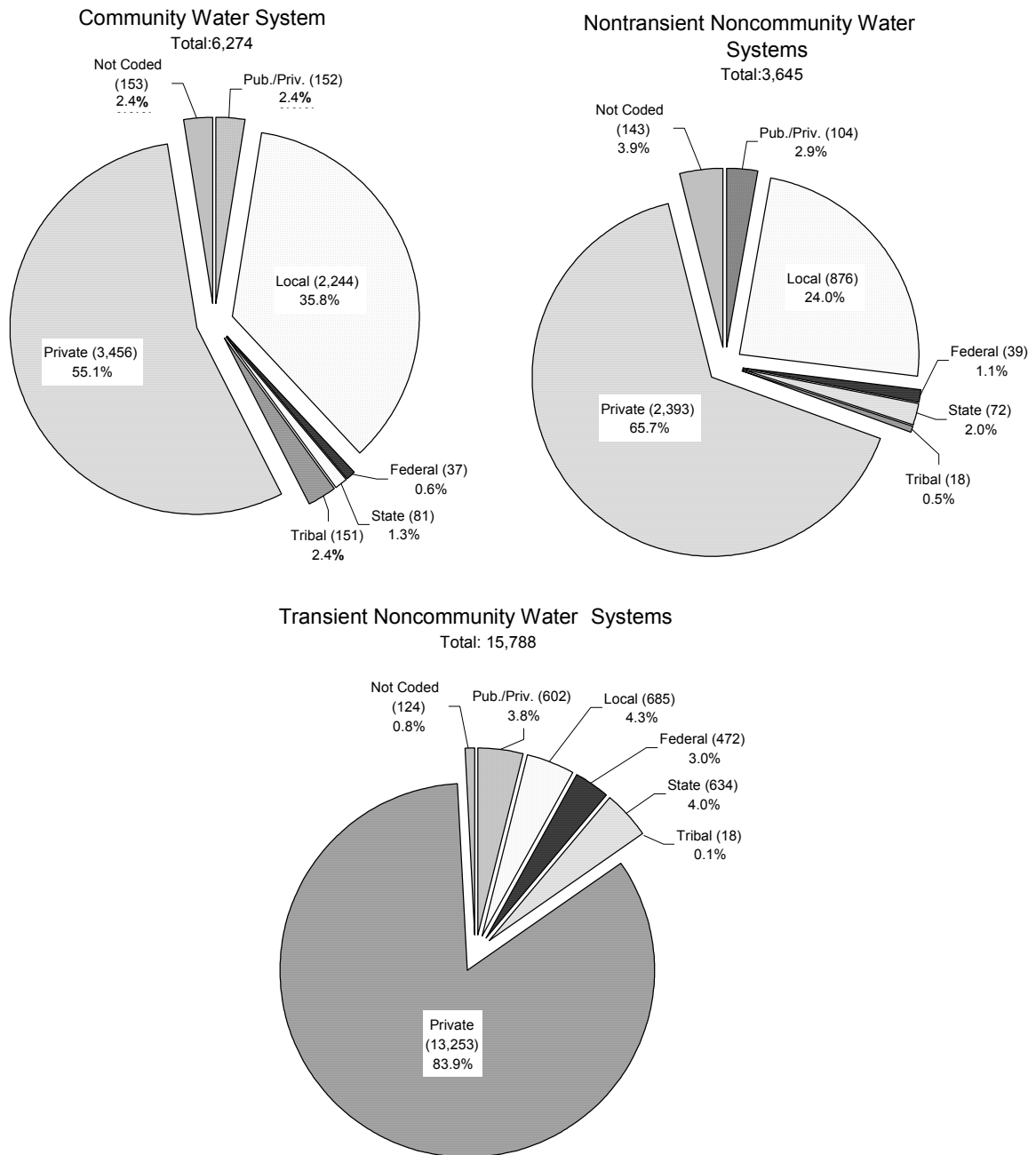
- community water systems — those that serve the same people year-round (e.g., cities, towns, villages, and mobile home parks)
- nontransient noncommunity water systems — those that serve at least 25 of the same people for at least six months of the year (e.g., schools, day care centers); and
- transient noncommunity water systems — Those that serve transient populations (e.g., rest stops, campgrounds, and parks).

¹⁰ U.S. GAO, *Federal Role in Addressing – and Contributing to – Nonpoint Source Pollution*, GAO/RCED-99-45 (Washington, D.C., Feb. 1999, p. 54). The federal government owns almost a third of the land in the total United States. See Table 3-3.

There are about 54,000 community systems, 20,000 nontransient noncommunity systems, and 95,000 transient systems. About half of the community water systems are privately owned, but on a population-served basis they serve only 14% of the population. About 80% of the U.S. population is served by community water systems owned by local government. The government systems tend to be much larger than the private ones.

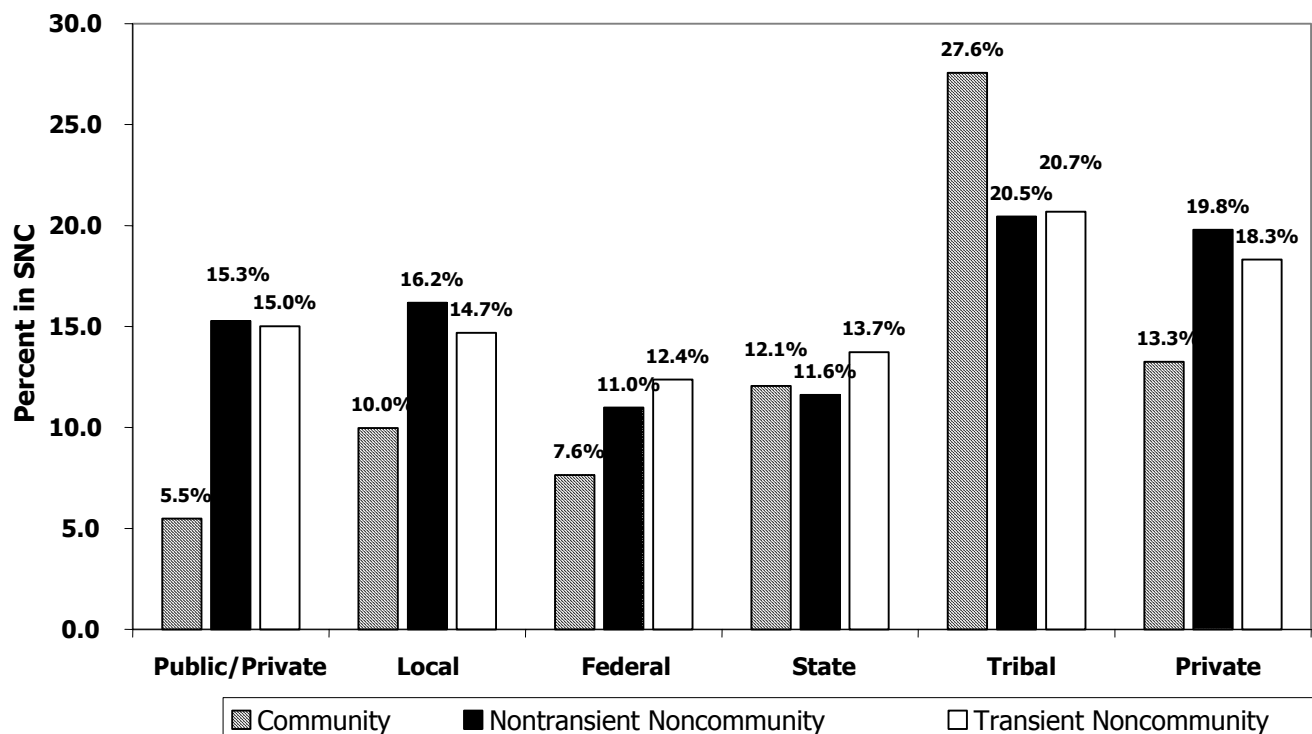
Local government water systems are an important part of the noncompliance problem. Of the community water systems in significant noncompliance, 35% were owned by local government (see Figure 2-5). However, unlike the POTW situation, the compliance record of government drinking water entities is, on average, better than private entities (see Figure 2-6). Thirteen percent of private community systems—but only 10% of local government systems—were in significant noncompliance with the federal drinking water requirements.

Figure 2-5 – Drinking Water Systems in Significant Non-Compliance (SNC) for Any Violations During at Least One Quarter, FY 1998



Source: EPA Office of Water web page (<http://www.epa.gov/safewater/pivottables.html>).

Figure 2-6 – Percent of Drinking Water Systems in Significant Noncompliance for Any Violations During at Least One Quarter, FY 1998



Source: Data from EPA Office of Water web page (<http://www.epa.gov/safewater/data/pivottables.html>).

The larger size of government-owned drinking water systems is probably a major part of the reason why their compliance record is better than private systems. Larger systems are more likely to have the resources and expertise to achieve the regulatory requirements—this is partially confirmed by the notable exception to the better public record, namely systems owned by Native American tribes. Tribal systems tend to be mostly small systems serving fewer than 500 people. Only two of the 930 tribal systems serve more than 10,000 people.¹¹ Their very

¹¹ EPA, Office of Enforcement and Compliance Assistance, *Providing Safe Drinking Water in America*, EPA 305-R-99-002 (Washington, DC, April 1999, p. 23).

poor compliance record (see Figure 2-6) is undoubtedly attributable to the very poor economic condition of most tribes, but the size of the system may be a contributing factor.

Hazardous Waste Management

Under Subtitle C of the Resource, Conservation and Recovery Act (RCRA), all entities that generate more than 100 kilograms of hazardous waste a month (or more than 1 kilogram of what is termed “acutely hazardous waste”) must:

- obtain an EPA identification number;
- treat, store, and dispose of their waste at a facility permitted to manage hazardous waste under Subtitle C of RCRA; and
- comply with certain record keeping and reporting requirements.

Facilities that treat, store, and dispose of hazardous waste — referred to as TSDFs — must have a permit to operate, and must comply with a large range of regulatory requirements governing the performance of the facility, as well as recordkeeping and reporting.

EPA regulations under RCRA are considered minimum requirements. States can be — and most are — authorized to implement the RCRA program in lieu of the federal government. Under the law, state programs can be more stringent than the federal program, both in terms of the technical standards for waste management facilities and in terms of the amount and type of wastes that are regulated under the state hazardous waste laws.

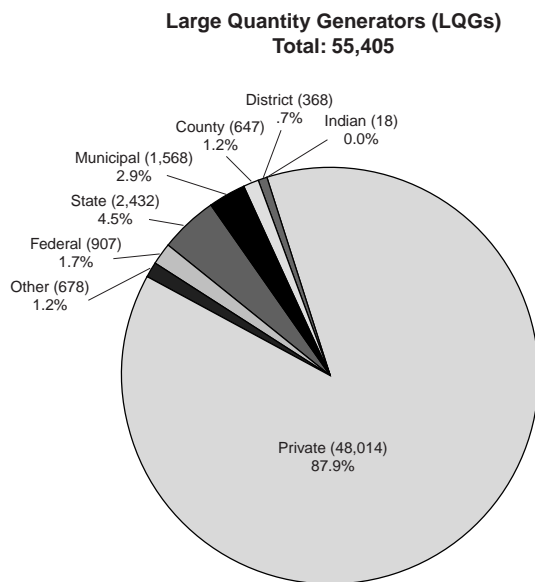
Hazardous Waste Generators

Hazardous waste generators are divided into two main categories: large quantity generators (LQGs) and small quantity generators (SQGs). LQGs are those that generate more than 1,000 kg of hazardous waste a month, or more than 1 kg of acutely hazardous waste a month. Small quantity generators are those that generate between 100 kg and 1,000 kg of hazardous waste a month. Those entities that generate less than 100 kg of hazardous waste or less than 1 kg of acutely hazardous waste are, in essence, not regulated at this time, and are termed conditionally exempt SQGs.

Just over 10% (5,940, or 10.7%) of LQGs are public sector generators, with almost half of these being state government entities. The next largest share of government generators comes

from municipal governments. If you add up all local governments — municipal, county, and district — they comprise 40% of all government generators (see Figure 2-7).

Figure 2-7—Ownership of Large Quantity Hazardous Waste Generators

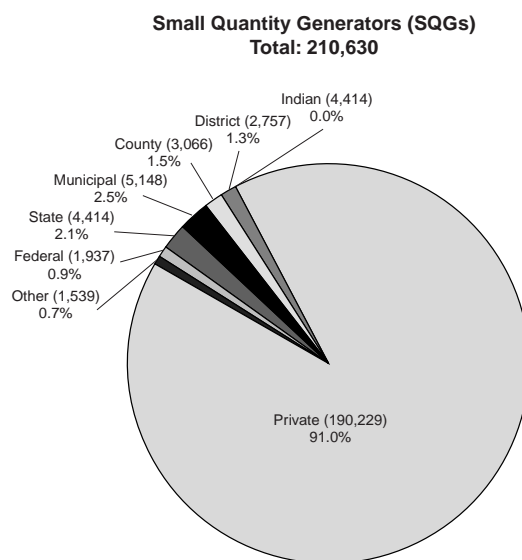


Source: *EnviroFacts*, retrieved from the master RCRIS database on 6/14/99. LQGs are those coded as LARGE QTY GENERATOR in the field UNIVERSE_NAME of data table RCE_FACILITY_UNIVERSE. Ownership derived from field OWNR_OP_TYPE in table OWNER_OPERATOR. Non-notifiers were identified in field NON_NTFR in table RCR_FACILITY.

Note: Does not include 249 LQGs that are coded as “non-notifier.” A non-notifier is a generator that is suspected of not notifying EPA or state authorities that it has been conducting RCRA-regulated activities. Generators that were initially non-notifiers and later determined to be exempt are excluded. Former non-notifiers that are now reporting are included in the above figure. “Totals” include 773 LGQs that did not have entries in the OWNER_OPERATOR data table.

The numbers for SQGs are relatively similar. Government generators comprise 8.3% of all SQGs. For SQGs, municipal government is the dominant level of government SQG, with 2.5% of the total SQGs, and more than 25% of the government share. All local governments together again make up the largest share, or 63% (10,971) of government SQGs (see Figure 2-8).

Figure 2-8—Ownership of Small Quantity Hazardous Waste Generators

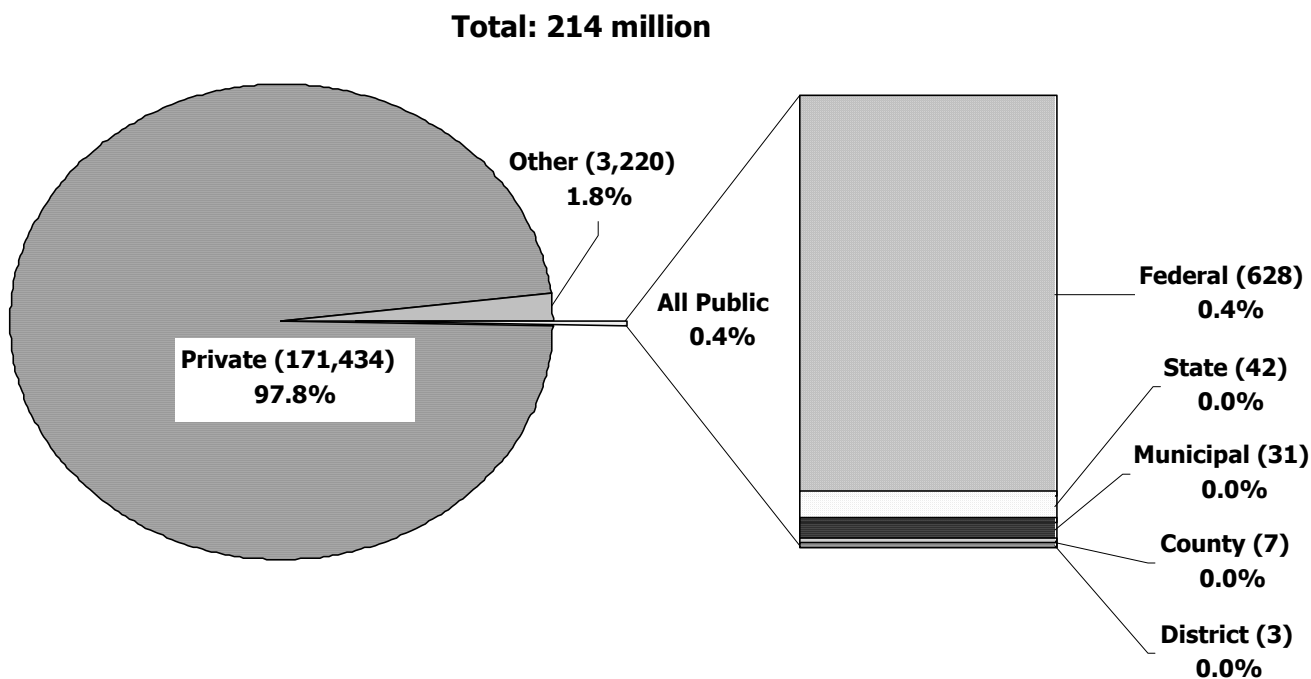


Source: *EnviroFacts*, retrieved from the master RCRIS database on 6/14/99. SQGs are coded as SMALL QTY GENERATOR. Ownership derived from field OWNR_OP_TYPE in table OWNER_OPERATOR. Non-notifiers were identified in field NON_NTFR in table RCR_FACILITY.

Note: Does not include 1,135 SQGs that are coded as "non-notifier." Generators that were initially non-notifiers and later determined to be exempt are excluded. Former non-notifiers that are now reporting are included in the above figure. "Totals" include 1,486 SQGs that did not have entries in the OWNER_OPERATOR data table.

Of course what really matters is not just the number of generators that are government entities, but the volume of hazardous waste they generate. Data from EPA on the volume of hazardous waste generated are inconsistent. In 1995, 20,416 LQGs reported generating 214 million tons of RCRA-regulated hazardous wastes during the year. While government-owned facilities represented slightly more than 10% of the LQGs (see Figure 2-7), they were responsible for less than 1% of the volume of hazardous waste generated. Publicly owned generators generated an average of 450 tons of hazardous waste that year, in comparison with privately owned LQGs, which generated an average of more than 10,000 tons in 1995 (see figure 2-9).

**Figure 2-9 - RCRA-Regulated Hazardous Waste Generated
By Large Quantity Generators During 1995**



Source: 1995 National RCRA Hazardous Waste Biennial Report Data Files. Waste generated volumes retrieved from Field 2 Table USOHT95. LQGs identified in Field 11, Table USOS295. Ownership derived from field OWNER_OP_TYPE in table OWNER_OPERATOR of RCRIS on EnviroFacts, retrieved from the master RCRIS database on 6/14/99.

Note: Includes total RCRA-regulated hazardous wastes produced by Large Quantity Generators. “Total” includes nearly 39,000 tons of waste generated by 1,374 handlers that did not have entries in the OWNER_OPERATOR table.

Hazardous Waste Management Facilities

Most of the focus in the RCRA program is on facilities that treat, store, and dispose of hazardous waste (TSDF). These include hazardous waste incinerators, landfills, and other waste management facilities. In 1999, there were a total of 3,137 TSDFs, with 9% (271 facilities) owned by the federal government. As shown in Figure 2-10 below, fewer than 13% of TSDFs (394 facilities) are publicly owned. The overwhelming majority of facilities—more than 85%—are privately owned.

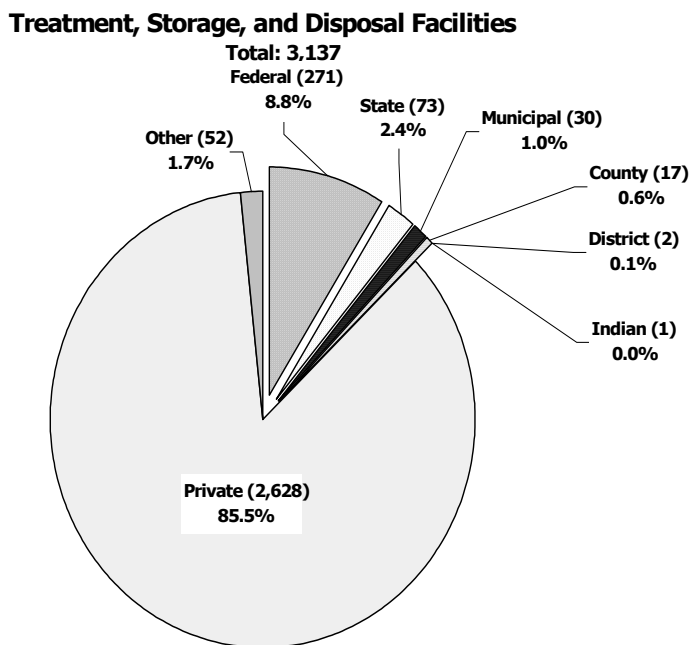
The percentage of federal ownership is slightly higher for two sub-sets of these facilities: slightly fewer than 12% of storage and treatment units are federally owned, and 15% of

hazardous waste incinerators (26 out of a total of 175) are owned by the federal government. Federal ownership of hazardous waste landfills is lower than the average, at 5% (or 67 out of a total of 1,334 landfills).¹²

The best indicator of TSDf compliance with RCRA requirements is the number of Class I violations, which are considered the most severe. A second indicator is whether the facility is in significant noncompliance (SNC) status, but the SNC data are not reliable. It is possible that violations are more an indicator of severity of enforcement than of compliance. However, there are data that indicate that enforcement, as measured by number of inspections, is equally stringent for public and private facilities.

¹² Source: *EnviroFacts*, retrieved from the master RCRIS database on 6/14/99. TSDFs are those coded as TSDF SUBJECT TO CEI in the field UNIVERSE_NAME of data table RCR_FACILITY_UNIVERSE. Ownership derived from field OWNR_OP_TYPE in table OWNER_OPERATOR.

Figure 2-10 – Ownership of Hazardous Waste Treatment, Storage, and Disposal Facilities



Source: *EnviroFacts*, retrieved from the master RCRIS database on 6/14/99. TSDFs are those coded as TSDF SUBJECT TO CEI in the field UNIVERSE_NAME of data table RCR_FACILITY_UNIVERSE. Ownership derived from field OWNER_OP_TYPE in table OWNER_OPERATOR.

Note : Chart does not include 30 facilities (25 private, 1 municipal, 2 other, and 2 not coded) that are "non-notifiers," i.e., facilities that are not permitted TSDFs, but are suspected of performing treatment, storage, or disposal activities without notifying EPA or state authorities. "Total" includes 63 facilities that did not have entries in the OWNER_OPERATOR data table.

Class I violations include deviations from provisions of compliance orders, consent agreements, consent decrees, and permit conditions that could result in hazardous waste not being managed properly or in the release of hazardous waste or a hazardous constituent.¹³

¹³ U.S. EPA, Office of Enforcement and Compliance Assurance, *The State of Federal Facilities: An Overview of Environmental Compliance at Federal Facilities, FY 1995-96*, EPA-300-R-98-002b (June 1998), p. 8.

According to EPA's data, during FY 1998 353 facilities were Class I violators, or approximately 10% of all TSD facilities. Government-owned facilities accounted for approximately 12% of the Class I violators.¹⁴ This is a slightly smaller percent than the total TSDFs that are government owned. Thus, government-owned facilities regulated under RCRA were not, according to this data, disproportionately likely to be in violation of RCRA requirements. Data on the frequency of inspection of private and public facilities are needed to assess whether this information accurately portrays how likely it is that government facilities are not in compliance with RCRA hazardous-waste management facility requirements.

The majority of TSDFs—2,104 facilities—were inspected or evaluated at least once during FY 1998. Government facilities represented 14% of inspections, or slightly more than their total numbers would imply. Of all facilities, 858 were subject to some kind of an enforcement action.¹⁵ Government facilities were no more likely than private facilities to be the subject of enforcement actions.

The RCRA corrective action program requires TSDFs, as a condition of their permit, to clean up areas on their site that are contaminated with hazardous waste or constituents. There are 3,710 facilities in the corrective action workload. The corrective action program is currently focusing on 1,714 primarily high priority facilities called the RCRA Cleanup Baseline Facilities. One hundred and sixty (9%) of the baseline facilities are federally operated. Nineteen (12%) of those federally operated facilities have met both environmental indicators (EIs) which are interim milestones that summarize the site-wide environmental conditions at the facility. Comparing that to 381 (25%) of privately owned companies meeting those same EIs suggests that the federal sector is moving more slowly to cleanup its sites than the private sector.

¹⁴ Source: *EnviroFacts*, retrieved from the master RCRIS database on 6/14/99. TSDFs are those coded as TSDF SUBJECT TO CEI in the field UNIVERSE_NAME of data table RCR_FACILITY_UNIVERSE. Facilities cited for Class I Violations in FY 1998 are those in data table RCR_VIOLATIONS with VIOL_DET_DATE between 10/1/97 and 9/30/98 (inclusive) and VIOL_CLASS set to 1. "Totals" include 13 handlers with Class I Violations that did not have entries in the OWNER_OPERATOR data table.

¹⁵ Source: *EnviroFacts*, retrieved from the master RCRIS database on 6/14/99. TSDFs are those coded as TSDF SUBJECT TO CEI in the field UNIVERSE_NAME of data table RCR_FACILITY_UNIVERSE. Facilities evaluated in FY1998 are those in data table RCR_EVALUATION with EVAL_COMPLETION_DATE between 10/1/97 and 9/30/98 (inclusive). Facilities receiving enforcement actions in FY1998 are those in data table RCR_ENFORCEMENT with ENF_ACTION_DATE between 10/1/97 and 9/30/98 (inclusive). Ownership derived from field OWNR_OP_TYPE in table OWNER_OPERATOR.

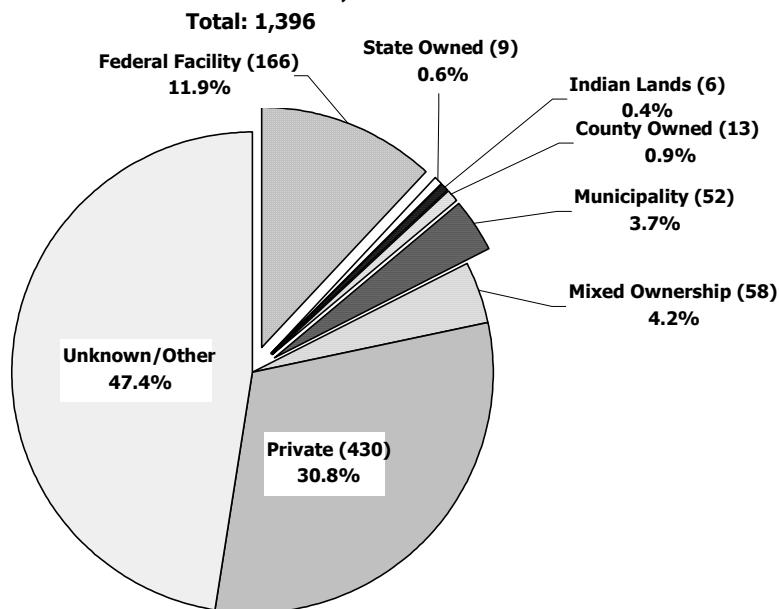
Superfund

In 1980, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), better known as Superfund, became law. Superfund, which was amended in 1986, has powerful enforcement tools for encouraging — and compelling — the cleanup of sites contaminated with hazardous substances. It also, as the name implies, established a fund to pay for the cleanup of contaminated sites where responsible parties either could not be found or were recalcitrant. In order to qualify for cleanup paid for out of the Superfund trust fund, sites must be placed on EPA's National Priorities List (NPL). In general, the highest priority sites warranting federal attention are included on the NPL, whether or not they require trust fund monies for cleanup. However, section III(e)(3) of the Superfund law provides that no trust fund monies can be used at federal facilities. Cleanup of federal facilities is paid for from the budget of the agency responsible for the site (e.g., U.S. Departments of Energy (DOE) or Defense (DOD)).

Nearly 1,400 sites have been listed on the NPL since the inception of the Superfund program. Of the 1,396 sites on the NPL as of June 14, 1999, almost half had no clear ownership code in EPA's database. Of the total, publicly owned sites account for 21.8% (304), with the largest share (11.9% or 166 facilities) owned by the federal government — which are referred to as federal facility sites. According to EPA, only 3.7% of NPL sites are municipally owned, as indicated in Figure 2-11. However, EPA does not have ownership information for almost 50% of these facilities, and it is likely that public ownership is in fact higher than currently indicated.¹⁶

¹⁶ See *Footnote the Bill for Superfund Cleanups*, p. 35.

Figure 2-11: Ownership of Sites that Have Been Listed on the NPL List as of June 14, 1999



Source:EnviroFacts, retrieved from the master CERCLIS database on 6/14/99. Includes sites Currently on the Final NPL and Deleted from the Final NPL (codes F and D, respectively) as in field RNPL_STATUS in table CERCLIS3_CER_SITE. Ownership derived from field ROT_CODE and RFED_FACILITY_CODE.

Notes:

1. Includes sites currently on the Final NPL and deleted from the Final NPL.
2. Federal facility includes one site coded as government owned /contractor Operated and one site coded as formerly federally owned or operated in field ROT_CODE. In addition, the federal facility classification includes nine sites coded as federal facilities in RFED_FACILITY_CODE, but listed as Indian lands (4), other (2), and unknown (3) in ROT_CODE.
3. The ROT_CODE designating Indian Lands includes some federal and private facilities (some now defunct) that are located on Indian trust lands. Federal facilities were removed and included in the Federal Facility category, while all others were left as coded.

In Superfund, the key question is not whether a site is in compliance, but what progress has been made towards cleanup. EPA’s measure of this is whether a site is “construction complete,” which means that all remedial actions are either completed or underway. Sites that require long-term groundwater pumping and treating can still be deemed construction complete. As of mid-1999, 43% of the current NPL (604) sites were deemed construction complete (see

Table 2-2). State sites were more likely than the average to be construction complete (55.6%), and federal sites were much less likely than the average to be construction complete — with only 10% of federal facility sites identified as having reached the construction-complete stage. The lag in cleanup for federally owned sites could be due to the complexity of the sites, but further analysis would be required to determine this. The other category with a low percentage of construction-complete sites are those with “mixed ownership.”

Table 2-2: Ownership of NPL Sites¹ that have Reached Construction Completion as of June 14, 1999

	Number of NPL Sites	Number of Construction Completions	% of NPL Sites Construction Completed
Federal Facility ²	166	17	10.2%
State Owned	9	5	55.6%
Indian Lands ³	6	3	50.0%
County Owned	13	8	61.5%
Municipality	52	24	46.2%
<i>Total Public</i>	<i>246</i>	<i>57</i>	<i>23.2%</i>
Mixed Ownership	58	21	36.2%
Private	430	201	46.7%
<i>Total Coded</i>	<i>734</i>	<i>279</i>	<i>38.0%</i>
Unknown/Other	662	325	49.1%
Total	1,396	604	43.3%

Source: NPL sites from *EnviroFacts*, retrieved from the master CERCLIS database on 6/14/99. Includes sites Currently on the Final NPL and Deleted from the Final NPL (codes F and D, respectively) as in field RNPL_STATUS in table CERCLIS3_CER_SITE. Ownership derived from field ROT_CODE and RFED_FACILITY_CODE. Construction Completion sites identified on the *Construction Completions List*, available at http://www.epa.gov/superfund/accomp/cc_ei.htm. Six hundred and four sites with construction completion date before 6/14/9 were included for consistency with the CERCLIS data. EPA_Site_ID was used to match sites with ownership data in CERCLIS.

Notes:

1. Includes sites both currently on and deleted from the Final NPL.

2. Federal facility includes one site coded as government owned /contractor operated and one site coded as formerly federally owned or operated in field ROT_CODE, neither of which is construction complete. In addition, the federal facility classification includes nine sites coded as federal facilities in RFED_FACILITY_CODE, but listed as Indian lands (4 NPL, 3 construction complete), other (2 NPL, one construction complete), and unknown (3, 0 construction complete) in ROT_CODE.

3. The ROT_CODE designating Indian lands includes some federal and private facilities (some now defunct) that are located on Indian trust lands. Federal facilities were removed and included in the federal facility category, while all others were left as coded.

Under Superfund, sites with government ownership are treated differently in some cases. For example, Section 120 of the Superfund law explicitly lays out a different process for the cleanup of federally owned sites — such as those owned by DOE and DOD. Appropriations for cleanup of these sites is part of the owning agency's budget, and does not come out of the Superfund trust fund. Federal agencies that are, in the Superfund lingo, responsible parties, have more control over the site cleanup process than nonfederal government entities and private parties. The most expensive Superfund sites are almost certainly former nuclear weapons production sites, now owned by DOE. These include the Hanford Reservation site in Washington state, the Savannah River site in South Carolina, and the Rocky Flats Environmental Technology site outside Denver. Some estimates by DOE put the cost of cleanup for all contaminated DOE sites at more than \$200 billion.

Federal agencies also have a large number of contaminated sites that are not on the NPL. For example, DOD has inventoried 18,566 release sites at 1,548 active installations. A release site is one at which there has been some type of hazardous material released.¹⁷ The types of contamination at these active installations include fuel spills, underground tanks, contamination from industrial operations, landfills, munitions, and low-level radioactive waste.¹⁸ Furthermore, the U.S. Army Corps of Engineers lists potential hazards at more than 4,000 sites that DOD once used or owned (known as Formerly Used Defense Sites, or FUDS; EPA sources think the actual number of such sites is more than 9,000). DOD also is responsible for sites with potential contamination and explosive hazards from abandoned munitions and firing ranges. EPA and DOD have been negotiating the extent to which DOD will clean up these unexploded ordnance sites — unilaterally or under CERCLA/RCRA authority.

In addition to former nuclear weapons production sites that are Superfund sites (mentioned above), DOE is also responsible for contaminated sites not on the NPL. DOE has identified approximately 10,000 release sites at 113 geographic sites under its control, including nuclear reactors, chemical processing buildings, metalworking operations, electronic plants, laboratories, and explosives testing facilities. The National Aeronautics and Space Administration (NASA) is similarly responsible for contaminated sites, although the numbers are

¹⁷ Personal communication, Michael Doherty, Environmental Engineer, Water Program Manager, U.S. Marine Corps, July 28, 2000.

¹⁸ DOD, Defense Environmental Restoration Program (DERP), *FY 1998 DERP Annual Report to Congress* (Washington, D.C., 1999).

significantly smaller. NASA has identified 913 potentially contaminated sites at 22 of its field facilities, including solvent and fuel spills from transportation facilities, and industrial wastes at manufacturing plants and research and testing facilities.¹⁹

It is not surprising that land management agencies such as the U.S. Department of Interior (DOI) and the U.S. Department of Agriculture (USDA) are responsible for contaminated sites as well, as they own almost one-third of the land in the country (see Table 2-3). Contamination at these sites is usually caused by nonfederal uses of land, such as illegal dumping, transportation spills, landfills, and oil and gas drilling. Furthermore, the U.S. Bureau of Land Management (BLM) estimates that it has more than 70,000 abandoned mine sites on its land, while the USDA has 25,000 of these sites. Although only about 10% of these sites are thought to pose physical or environmental hazards, a lack of resources makes it difficult for these agencies to remediate the sites themselves, or pursue potentially responsible parties.²⁰

Land Use

Air pollution, water pollution, and drinking water are government programs as well as problem areas. Land use is not a program or even a specific set of problems. However, in the United States, government agencies are finding that more and more environmental problems are rooted in the way that land is used. Land use drives nonpoint source water pollution and is important in determining the amount of air pollution from automobiles. Furthermore, the American people are increasingly impatient with such land-use related problems as urban sprawl and traffic congestion.

Government is a major contributor to sprawl and to land degradation. It contributes primarily in three ways: as a land owner; as a builder of roads, water and sewer lines, and other basic infrastructure; and as a regulator and subsidizer influencing other people's use of the land.

Governments own 40% of the land in the United States (see Table 2-3). The federal government is the largest governmental landowner, with holdings concentrated in 12 western

¹⁹ National Aeronautics and Space Administration (NASA), *NASA 1999 Accountability Report* (Washington, D.C., 1999); U.S. General Accounting Office, *Environmental Cleanup Costs: NASA Is Making Progress in Identifying Contamination, but More Effort Is Needed*, GAO/NSIAD-97-98 (Washington, D.C., June 1997).

²⁰ USDA, *Consolidated Financial Statements for Fiscal Year 1998*, Audit Report No. 50401-30-FM (Washington, D.C.: February, 1999); U.S. Department of the Interior, Bureau of Land Management, *Annual Performance Plan for Fiscal Year 2000* (Washington, D.C., February 1999).

states (Alaska, Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming) where governments own 70% of the land. Together, these states constitute 50% of total U.S. land area, yet contain 93% of federal lands.

Federal land ownership is a major political issue in many western states. The federal agencies have been criticized for not coordinating among themselves and for not cooperating with local governments. And the whole idea of government ownership has been criticized by right-wing conservatives and libertarians

Table 2-3. Land Ownership in the United States

	Total U.S.		U.S. excl. Alaska & Hawaii		12 Western States ²	
	Acreage ¹ (Millions)	% of Land Area	Acreage (Millions)	% of Land Area	Acreage (Millions)	% of Land Area
Total Land Area	2,271		1,902		1,118	
<i>All Federal Lands</i> ³	655	29%	406	21%	605	54%
<i>State and Local Lands</i>	195	9%	~106	~6%		
<i>State-Owned Lands</i> ⁴					139	12%
<i>Indian Trust Lands</i> ⁵	52	2%	52	3%	44	4%
Total Public Lands	902	40%	~564	~30%	788	70%

Sources: “Total Land Area” and “All Federal Lands” from U.S. General Services Administration, *Summary Report of Real Property Owned by the United States Throughout the World as of September 30, 1998* (Washington, D.C., July 1999).

“State and Local Lands” from USDA, Economic Research Service (ERS), *Agricultural Resources and Environmental Indicators 1996-97*, Agricultural Handbook No. 712 (Washington, D.C., July 1997). Note that Continental U.S. state-owned lands represents the USDA-ERS nationwide total, minus the large amount of state-owned land in Alaska from GAO.

“Four Land Management Agencies,” “State-Owned Lands,” and “Indian Trust Lands” from U.S. GAO, *Acreage, Management and Use of Federal and Other Lands*, GAO/RCED-96-40 (Washington, D.C., March 1996).

Notes:

1. All acreage figures exclude submerged coastal waters and the Great Lakes.
2. The 12 western states are: Alaska, Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming. Together they constitute 50% of total U.S. land area, yet contain 93% of federal lands.
3. The GAO report only provided state-level ownership of public lands by four federal land management agencies (Forest Service, Bureau of Land Management, Fish and Wildlife Service, and the National Park Service). Together, these four manage 95% of federal lands.
4. “State Owned Lands” figures listed for nationwide and continental U.S. represent only the 13 western states (includes Texas, see note 3) surveyed by GAO.
5. Indian Trust Lands includes federal trust, tribal/restricted fee, and government lands.

Federal agencies have been criticized by environmentalists for not being adequate stewards of the land—for example, by allowing overgrazing on BLM lands or overcutting in national forests. One-third of the coal mined in the United States is mined on federal land. This is a relatively new phenomenon, attributed largely to the increased demand for low-sulfur coal, which is concentrated in the West, where the federal government owns the majority of coal reserves.²¹

Very little attention has been paid to state and local governments as landowners. The contexts of such ownership are so varied that it may be impossible to make any generalizations. Consider, for example, the gamut that runs from New York's Adirondack Forest Preserve, which occupies almost a third of the state and is required by the state constitution to be kept "forever wild," to the many small urban parcels of contaminated land owned by local governments. Both situations have important environmental consequences, but it is hard to find any other similarities.

Most infrastructure that allows development to take place is planned and built by government. Roads, water lines, and sewer lines determine the location of future development. More often than not, however, private developers are the real driving force behind where infrastructure is located — the market leads, government follows. The result is often sprawl, congestion, and added costs for government and residents alike.

Local governments are the traditional regulators of land use through their powers of zoning and planning. However, other government levels can similarly shape land use. State governments can regulate where development will take place, and states like Oregon and Maryland have effectively used state authority for this purpose. Federal regulation of wetlands is an important influence on land use, and federal agricultural subsidies are a key factor in determining how much land will be devoted to agriculture.

Given the multitude of influences that governments have on land use, it would be futile to even think about a fully coordinated land-use planning system, much less to try to implement one. However, some important experiments in this direction have been undertaken. For example, the Clean Air Act contains legal requirements for conforming transportation and air quality planning.

²¹ Energy Information Administration, DOE, *Coal Industry Annual 1997*, DOE/EIA-0584 (97) (Washington, DC, 1998).

Conclusions

The major differences among programs and levels of government make any general conclusions difficult. It is clear that, for many kinds of pollution, governments — federal, state, and local — are significant pollution sources. They account for more than 7% of SO₂ air pollution emissions and more than 5% of all NO₂ air emissions in the United States. Public entities are more likely than private ones to be in violation of the Clean Water Act, and they accounted for two-thirds of all major facilities in significant noncompliance with the act. DOE nuclear sites are the worst hazardous waste problems in the nation.

Comparing public and private compliance is difficult. There is a lack of data, and what data exist offer uncertain measures of compliance. As with contribution to pollution, there also are significant differences among programs. Although government entities are worse violators of the Clean Water Act than private entities, the reverse seems to be true for compliance with the Safe Drinking Water Act. On the whole, it seems clear that getting compliance from government agencies is a difficult and complex task.

We do not have sufficient data over time that allows us to say whether government's contribution to pollution is growing or being reduced. We do tend to agree with the tentative views of an EPA official in the RCRA program who told us: "Ten or 15 years ago, DOD and DOE routinely refused to recognize that they were subject to RCRA or to state waste regulation. We're pretty much past that, I think."

Chapter 3. The Dynamics of Government Regulating Government

In this chapter we focus on explanations for the difficulties government agencies have regulating the behavior of other government agencies, particularly in preventing them from causing pollution. The factors involved in this type of government-to-government interaction also are relevant for many other types of intergovernmental interaction. We describe these factors— political, legal, financial, psychological, and others—and provide some indication of their relative importance. Our hope is that this will provide a useful starting point for future debate and research.

Political Dimensions

Government-to-government interactions take place in a political context. By "political" we mean partisan, in the sense that the effect of the interactions on the political parties, whether

state or national, is usually a consideration for the major government actors. This does not necessarily mean they favor one party or the other, but in all cases their top bosses are elected officials, whether governor, president, or legislator, and thus the actors ignore partisan considerations at their peril.

Government-to-government interactions also are political in a broader sense. They take place within the political system of government in the United States, and this system has certain characteristics that affect the interactions.

Arguably, the most important characteristic in this context is the high degree of decentralization within the political system. Congress and the political parties are organized to a significant degree on the basis of states, and state parties and governments are highly responsive to local interests. It is, therefore, not surprising that actions that may hurt important interests in a particular geographic area will set off alarm bells that will be heard far beyond the area affected. A threat by EPA to draft a federal air quality implementation plan for Chicago, for example, will provoke strong and rapid reactions in Congress and the White House because it could influence politics in Chicago which could, in turn, influence politics nationally. The number of U.S. Department of Energy (DOE) employees located in a particular state or where to locate an EPA laboratory are likely to be determined not at the local level but at the national level, by Congress. Advancing and defending the parochial interests of individual members' constituencies is a major congressional function.

It should not be assumed that higher levels of government are able to control lower levels, regardless of the legal context. A local government, even a small one, can usually exercise a veto over state actions that will affect it, as cases of hazardous waste siting illustrate. Similarly, a state can successfully resist federal actions that are of concern primarily to that state, as illustrated by the history of high-level nuclear waste disposal. Successful resistance is usually based on the decentralization noted above —our system of government has multiple centers of power, and they are not arranged in any hierarchy. A federal agency trying to curb pollution by state or local entities isn't going to have an easy time of it. .

Just as there is no real hierarchy among levels of government, there is no hierarchy within the federal executive branch. There are differences in power created by history, political strength, and resource inequality. What is a large amount of money for EPA is loose change for the U.S. Department of Defense (DOD) or DOE. No federal agency has an easy time giving orders to another, even when it is legally empowered to do so. The president and his agents in the U.S. Office of Management and Budget (OMB) can and do order agencies to take or not take

certain actions. But they do so at a political cost, and thus they ration the number of times they thwart the wishes of an agency. Even when they do, they are not always successful. The ability of an agency to resist orders from the White House is very great. It follows, then, that it may be very difficult for one federal agency to curb pollution created by another agency.

Legal Problems

The legal doctrine that is most relevant to determining whether one federal agency can enforce a law against another federal agency is the doctrine of “case or controversy.” U.S. courts will not hear cases unless they present a genuine case or controversy. Since all federal agencies are part of the same government, is it possible for two federal agencies to have a genuine controversy in the legal sense? The courts have ruled that it is possible. In a landmark 1949 Supreme Court case,²² the court held that, although the United States was suing the Interstate Commerce Commission (a federal agency), the “principle that a person cannot create a justifiable controversy against himself” did not apply. Later court rulings have come to the same conclusion.

Despite the court rulings that one federal agency can sue another, the U.S. Department of Justice (DOJ) has used the “unitary executive” theory to make such suits impossible. The unitary executive theory, first invoked by DOJ during the Reagan administration, says that judicial resolution of disputes within the executive branch is not appropriate because such disputes are not a “case or controversy.” Under the DOJ theory, the constitution gives the president general administrative control and supervision of subordinate executive branch officials, and the president has the sole responsibility for making sure the executive branch speaks with one voice. Thus DOJ, which acts as the lawyer for all federal agencies, will not allow one agency to sue another. (DOJ does not act as the lawyer for such quasi-federal entities as the Tennessee Valley Authority (TVA) and the U.S. Postal Service.)

In the context of EPA trying to get other federal agencies to comply with environmental laws and regulations, the unitary executive theory cuts in two directions. On the one hand, EPA cannot take a polluting agency to court, and so is deprived of its ultimate enforcement weapon. This is a significant handicap. However, many of the environmental statutes give EPA authority

²² *U.S. v. Interstate Commerce Commission*, 337 U.S. 426, 1949.

to impose administrative orders and penalties against polluting entities, including other federal agencies. The unitary executive theory prohibits agencies from using the courts to contest these administrative actions. It thereby strengthens the impact of EPA's administrative tools. Some knowledgeable officials, however, report that the lack of ultimate enforcement power renders EPA "toothless," and that the strengthening of administrative authority is not true in practice.

If federal agencies are prevented by DOJ from suing each other, can a state agency or an individual sue a federal agency—for example, to enforce a pollution control regulation? The relevant legal doctrine here is "sovereign immunity." Sovereign immunity is the long-standing doctrine that the government cannot be sued without its consent. All the major federal environmental statutes explicitly waive sovereign immunity for limited purposes.²³ However, some courts have construed the waiver provisions to mean that federal facilities are immune from punitive penalties and fines, although not from compliance requirements. In an important 1992 case, the U.S. Supreme Court held that Congress had not waived the national government's sovereign immunity from liability for civil fines imposed by a state for past violations of the Clean Water Act or the Resources Conservation and Recovery Act (RCRA).²⁴ This is a substantial limitation for states and private parties that seek enforcement against federal facilities.

Sovereign immunity may not be the only obstacle to imposing penalties on federal agencies. Federal agency managers cannot spend funds for purposes other than those identified by Congress in the annual appropriations acts. Until recently, this has been mostly a theoretical problem, but in 1999, Senator Ted Stevens of Alaska, angered by an administrative penalty assessed against an Army base in his home state, inserted a provision in the Fiscal Year 2000 Appropriations bill prohibiting DOD from paying environmental penalties unless the penalties are specifically approved by Congress. The insertion evoked strong objections, but there was little that could be done about it because of the need to pass the appropriations measure. President Clinton said he was "troubled" by the provision and ordered the military to immediately request authorization from Congress to pay environmental penalties. DOD issued a

²³ See CWA, sec. 313; CAA, sec. 118; CERCLA, sec. 120; and for RCRA see Federal Facility Compliance Act of 1992 (FFCA), sec. 6001.

²⁴ *U.S. Department of Energy v. Ohio*, 503 U.S. 607.

guidance memorandum requiring that penalty proposals must be submitted to the DOD secretary's office within two weeks.²⁵

Overall, the laws that apply to federal agencies complying with federal, state, or local environmental requirements tend to mirror the political obstacles to achieving compliance. The legal doctrines and their interpretation make it more, not less, difficult to get federal facilities to obey the same rules as private parties. The same is probably true of getting state and local facilities to comply, although we have not done any research on this.

Resource Constraints

There is no question that if resources were unlimited, relationships among federal agencies would be much easier. Two kinds of resource constraints are particularly relevant in the context of this paper: the funding required for federal facilities to come into compliance with applicable environmental regulations and standards, and the manpower that EPA and other environmental agencies would need to implement the legal requirements applicable to governmental entities.

The resources required to bring federal facilities—particularly DOD installations and the former DOE nuclear weapons facilities—into compliance with environmental requirements are staggering. In 1995, a federal interagency group estimated that just to clean up federal facilities that are Superfund sites would cost \$234 billion to \$389 billion over a 75-year period.²⁶ A large portion of these costs (\$200 billion to 350 billion) is attributable to DOE sites.²⁷ It is unknown what portion of the task this represents, but it would not be surprising if total cleanup costs for federal facilities were twice this amount or more.

The legal and political constraints on resource availability are severe. For example, it is nearly impossible for a federal agency to force a state legislature to appropriate money for cleanup. State agencies experience the same obstacles with respect to both local governments

²⁵ The penalty provision is sec. 8149 of the FY 2000 Defense Appropriations Act. The DOD guidance, dated Nov. 23, 1999, is reprinted in *Inside EPA*, Dec. 10, 1999, p. 11. Also, see the Center for Public Environmental Oversight, *Military and the Environment*, vol. VI, no. 6 (Dec. 1999).

²⁶ "Improving Federal Facilities Cleanup," Report of the Federal Facilities Policy Group, October 1995, p. vii.

²⁷ *Ibid.*, and see also U.S. General Accounting Office, *Superfund: Progress Made by EPA and Other Federal Agencies to Resolve Program Management Issues*, GAO/RCED-99-11 (Washington, D.C., 1999b, p.15).

and the state legislature. Both OMB and the U.S. Congress are often reluctant to see money from one federal agency used to comply with regulations from another agency.

However important resource constraints are, other factors may reduce their importance. For example, we have done extensive research into the DOE cleanup process in other research projects. What we have found is that the DOE cleanup program suffers from major deficiencies in management, staffing, and accountability. Until these deficiencies are remedied, it is unlikely that any amount of money will get the cleanup accomplished.²⁸

Thus, for DOE, the constraints in clean-up are not so much money as willpower and management. Adding more money to clean-up funds will help some but is not likely to solve the problem. We do not know the extent to which the same is true of DOD cleanup efforts, but it is likely that for DOD as well, money is not the only important constraint.

The other major resource constraint that is important in government regulation of government is the manpower and expertise available to the regulators. However, EPA has 9,000 people in regional offices. It does not seem credible to us that, especially if organized into teams that could move to different locations, EPA could not make good on a threat to take over any state environmental function. We are not saying that EPA should do this — only that the political and other constraints on such action are more important than resource constraints.

Political attention and will are the resources that are in shortest supply in most of the contexts covered in this study. Neither the general public nor environmental groups nor politicians think of government pollution as a major problem. Even if they do, they lack the understanding and tools to adequately address the problem. For example, it is remarkable how few members of Congress have ever worked in a large bureaucracy. Of the 100 senators, only 39 have ever worked in a bureaucracy of any kind.²⁹ Most members of Congress do not have any personal experience that enables them to understand the kinds of problems described in this paper.

²⁸ Katherine N. Probst and Adam I. Lowe, *Cleaning Up the Nuclear Weapons Complex: Does Anybody Care?* (Washington, D.C.: Resources for the Future, 2000).

²⁹ This analysis is based on the official biographies of senators in the 106th Congress. We used a very generous definition of bureaucracy, including, for example, Sen. Jim Bunning's service as president of Jim Bunning Agency, Inc.; Larry Craig's year as Vice President of the Future Farmers of America; and Tim Hutchinson's job as co-owner and manager of KBCV Radio.

Because resources are often a constraint, providing resources may be used to facilitate cooperation. For many years, federal grants provided the major portion of the funding for state environmental agencies, and this gave state agencies a big incentive to cooperate with federal officials. It's no coincidence that, as the percentage of federal funds in state agency budgets declined, the state agencies became increasingly independent and less willing to follow the federal lead.

Psychological Dimensions

The mindsets that people bring to a problem are usually essential to understanding their behavior, but are often hard to detect and generally go unanalyzed. The lack of bureaucratic experience of most congresspeople, for example, is, we believe, important in understanding their lack of attention to many of the problems covered in this study.

The mindset that most federal government officials bring to the regulation of other federal agencies is quite different from the one they bring to the regulation of the private sector. Again, as with members of Congress and bureaucracy, previous experience is a central factor. Few federal bureaucrats have worked for the private sector, and so to them the private sector is unfamiliar, alien, "other" and often hostile. In contrast, they have much greater understanding and sympathy for fellow federal bureaucrats and probably for state bureaucrats as well. (Similarly, private sector businessmen are much more comfortable dealing with other businessmen than with government bureaucrats.) In several of the interviews we conducted, when a federal bureaucrat referred to another agency he used "we" or "us" rather than "they" or "them."

How much difference do these kinds of psychological factors make in actual behavior? It is probably impossible ever to know, but we suspect they are important.

Public Opinion

The lack of public attention is an important factor in many government-to-government interactions. To the extent that public attention focuses at all on such matters, it is when particular interests or localities are affected. For example, one of the obstacles to cleaning up DOE sites has been the public pressure to maintain employment levels in the communities where the sites are located.

One aspect of public opinion that may be important is the distinction the public makes between "taxpayer money" and money from the private sector. State and federal legislators may

be reluctant to appropriate government funds to clean up government pollution because the funds either come at the expense of other government functions or causes dear to them, or, in the extreme case, may lead to a tax increase. Either option is politically hazardous.

It is conceivable that the taxpayer's reluctance to spend taxpayer money is balanced by a public view that government should set an environmental example and, therefore, it is unacceptable for government agencies to violate environmental standards. The notion of government as example-setter is longstanding. The 1966 Annual Report of the Council of Economic Advisers stated, "Leadership begins with setting the example: Federal facilities should demonstrate the nature and extent of practical pollution abatement." We are not aware of any data that indicate how the public strikes the balance between spending and example-setting, but our impression is that, at least in the present climate, government setting a good example is not the dominant sentiment.

The most important fact about public opinion in most government-to-government interactions is its absence. Controversies among agencies are seen as bureaucratic games played for an inside-the-beltway audience. The public is much more comfortable with the white hats vs. black hats framework that we cited at the beginning of this paper. The absence of public opinion often means that nothing gets done because other more important (meaning more visible) problems take precedence. There often is no public pressure to force government agencies to clean up their pollution. Another factor that complicates interagency relations is that different agencies have different constituencies with conflicting agendas. Environmental groups focus primarily (but not exclusively) on environmental agencies. Energy producers focus primarily (but not exclusively) on energy agencies. The result is that matters that directly affect two different agencies may produce either public neglect or agency conflict. However, sometimes the views of the different constituencies overlap or even find common ground, and public involvement can encourage interagency harmony.

The Web of Intergovernmental Relationships

This paper has placed more emphasis on conflict between agencies than on cooperation. This is because our major focus has been on an inherently conflictual situation—one agency trying to get another agency to do something that is not part of its primary mission. It also is because conflicts highlight areas where policy changes may be required.

The emphasis on conflict should not obscure the fact that many, probably most, interagency relationships are amicable and cooperative.³⁰ The interactions we have described take place in a complex web of interrelationships. While it sometimes is surprising how little coordination there is between agencies, there is, in fact, a great deal of interaction. Much more study is required before this interaction can be adequately characterized, but we suggest that it can best be understood with the matrix shown in Figure 3-1.

Figure 3-1

	<i>Same Governmental Level</i>	<i>Different Governmental Level</i>
Political issues		
Technical issues		

“Same governmental level” in the matrix refers to agency interaction at the same level in the federal system (e.g., one state agency interacting with another or the federal DOE dealing with the federal Department of Labor). “Different governmental level” refers, for example, to federal agencies dealing with state agencies or state agencies dealing with local agencies. The line between “political interaction” and “technical interaction” is much fuzzier. The former refers to interactions dealing with policy or political questions. The latter refers to interactions dealing with data or individual facilities or other nonpolicy matters. The line between these two is sometimes hard to draw, but we think it describes an important difference. Not surprisingly, political interactions are most likely to involve political appointees and high-level officials, whereas technical interactions usually are between lower level, technical staff people.

Our hypothesis is that the kind of interaction among officials will differ depending on the cell of the matrix in which the interaction takes place. It seems reasonable to hypothesize that political interactions are more conflictual than technical ones. However, there may be frequent exceptions to this generalization, and it is not clear whether interactions at the same level are

³⁰ For two different types of discussion, see Hugh Hecl, *A Government of Strangers* (Washington, D.C.: Brookings Institution, 1977); and Eugene Bardach, *Getting Agencies to Work Together* (Washington, D.C.: Brookings Institution Press, 1998).

more or less conflictual than ones involving different levels. This is only one of many areas covered by this paper that requires further research.

Recommendations for Further Research

Throughout the research for this paper we have been severely handicapped by a lack of data and a dearth of previous analysis. We believe the topics we have covered are important, but there is a lot of work to do before they can be adequately understood and before policies for improvement can be formulated and implemented.

The research that needs to be done falls into three general categories. First, there is the need to better document the extent of the problems. Second, we need to better understand the behavior of bureaucrats in the relevant contexts. Third, a lot of intellectual investment and exchanging of views is required to formulate remedies for the problems identified. We will briefly discuss each of these categories.

Chapter 3 presented most of the data we could find on the extent of pollution caused by governmental entities. The data are enough to show the seriousness and pervasiveness of the problem, but much better documentation is needed on which agencies cause how much damage because of what activities. In particular, the contribution of military agencies (both DOD and state national guards) to environmental degradation needs to be better documented, and there needs to be more analysis of government agency contributions to nonpoint source pollution. For example, almost nothing is known about environmental problems caused by activities in state parks and forests.

The other dimension to documenting problems involves analysis of the costs of conflict and lack of coordination among government agencies in the processes of environmental permitting, planning, and standard-setting. This is a much broader and less well defined set of tasks than documenting pollution caused by government, but it may be even more important. If nonenvironmental agencies ignore or resist environmental goals, society is likely to pay a steep price, but how much and in what way usually is not examined. To take just one of many examples, if the DOE and state Public Utility Commissions neglect global warming when setting their policies, the chances of dealing successfully with the warming problem are greatly reduced; at the least, solutions become much more expensive. A better understanding of these problems can provide the basis for dealing with them.

The second category of research needs encompasses trying to understand what really goes on when government agencies interact, whether the agencies are at the same or different

levels of the federal system. Federal-state interactions have been examined intensively and from many perspectives, although there is still much to be learned. Interactions between or among federal agencies have been studied in the field of public administration, although we still know surprisingly little about the dynamics of environmental policy interactions among federal agencies. Interactions among state agencies are almost entirely unstudied. We need a much better understanding of the way key environmental processes, such as permitting and enforcement, actually work in practice.

There are two newly important arenas that are almost entirely unexamined, at least from the perspective of environmental policy. One is the behavior of publicly-owned, privately-operated entities (POPOs). Such entities have been around for a long time, but the recent popularity of contracting to the private sector has increased their importance. For example, more and more municipal waste treatment plants and drinking water systems are being operated by private firms. Do these privately operated plants have a better or worse compliance record than publicly operated ones? How are decisions, such as the amount of money to spend on compliance, made with regard to such plants? Another example involves the DOE national laboratories, which have been POPOs for many years and have some of the most severe environmental problems to be found anywhere.

The other newly important arena is international organizations, especially international trade organizations. Decisions made within the World Trade Organization (WTO) or within the North American Free Trade Association (NAFTA) may have major environmental consequences, but we know very little about how such decisions are made or how environmental information is collected and analyzed by such organizations. Also, an increasing number of environmental problems are subject to international agreements, and we do not have an adequate understanding of how such agreements are made or implemented. Whether the government-to-government interaction in the international arena resembles the government-to-government interaction within the United States is an interesting question.

The final subject in need of research is policy solutions. If noncompliance with environmental standards by government agencies is a serious problem, and we think we have shown that it is, what incentives can be used to get government agencies to comply? Do monetary penalties work? Can release of information have an impact? Do the relevant legal doctrines and statutes hinder or facilitate compliance? These are the kinds of questions that require further analysis as we move to deal with the problem.

We also need to analyze possible solutions for coordination and conflict resolution, particularly with respect to federal agencies. There are mechanisms in existence: environmental impact statements, the OMB (which is charged generally with coordinating the activities of federal agencies), and the Council on Environmental Quality (which has a mandate to coordinate environmental policy). Our impression is that none of these mechanisms work well with respect to environmental policy, but more research is needed on this subject.

If this paper succeeds in calling attention to the problems it describes it will have succeeded in its major purpose. If it stimulates the type of research outlined above then it will be a greater success.. The problems covered in the paper are both important and neglected. We hope that by ameliorating the neglect we have taken a step toward ameliorating the problems.

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