

THE SMALL BUSINESS ASSISTANCE PROGRAM:
AN ANALYSIS OF SELF-REPORTED WORKSHOP
EFFECTIVENESS ON ENVIRONMENTAL
COMPLIANCE ISSUES

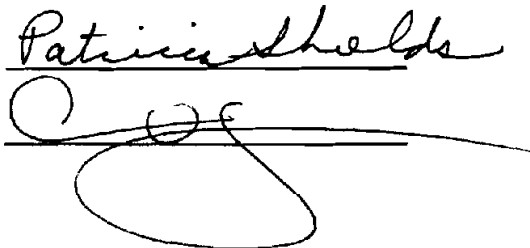
BY

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A handwritten signature in cursive script, reading "Patricia M. Shields", is written over a horizontal line. Below this line, there is a large, stylized, handwritten flourish or scribble that extends across the width of the signature area.

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CHAPTER 1

INTRODUCTION

Introduction

Over the last two decades, federal environmental laws have significantly changed the outlook for both existing and future business development. As technology and industry continue to grow at a rapid pace, legislation has sought to protect and maintain human health and the environment. Compliance with environmental laws is crucial if society is to maintain (and improve) today's quality of life. Without environmental compliance, permanent damage to human health and our environment is inevitable.

When most individuals think of pollution, they envision large, industrial sources such as oil refineries or production plants. Small businesses, however, have a profound effect on the environment. While air emissions and hazardous waste from individual businesses may seem insignificant, the aggregate amount of pollution from small sources can be detrimental to the environment. Environmental laws are in place to prevent or minimize damage to the earth's air, land and water. Over recent years, environmental legislation has been passed to address all sources of pollution, small businesses notwithstanding. This analysis will examine an existing program within the states' environmental agency, the Texas Natural Resource Conservation Commission (TNRCC), implemented to assist small businesses with environmental compliance.

This study will measure the effectiveness of workshops conducted by the Small Business Assistance Program (SBAP), part of the TNRCC. The intent of the workshops

is to educate small-owners and concurrently increase compliance of environmental laws. This analysis is a program evaluation of the **SBAP's** workshops, representing a business-government cooperative model. Programs which encourage cooperation are vital. Through compliance assistance programs, resources are not spent enforcing laws through fear but rather by educating business owners on benefits of compliance. Many business owners, particularly small-business owners, do not know what environmental regulations apply to them. As laws can be complex, owners may prefer to continue to operate under the premise that they "won't get caught." This results in much fear by the small-business community and more importantly can account for significant levels of pollution.

If the Small Business Assistance Program can effectively and **efficiently** educate owners on how to comply with regulations, owners benefit by avoiding potential fines or in some cases criminal action. Fines and criminal action often lead to the closing of small businesses as they do not have the resources larger companies do. They may not be able to afford upgrading technical equipment, hire qualified personnel, etc. Equally important, with an effective voluntary compliance program, the environment is protected.

Without voluntary compliance, state resources are spent on enforcement of regulations through inspections. This process actually captures only a partial number of violations. However, with an effective compliance assistance program, the small-business community will voluntarily comply with **regulations** and ultimately more businesses will be in compliance. For this reason, this program evaluation is compelling as it will assist with developing an effective compliance assistance program.

The Small Business Assistance Program assists numerous industries with environmental compliance. Examples include **autobody** shops, wood-working facilities, printers, metal finishers, etc. This particular study analyzes the Small Business Assistance Program's workshops presented to the dry cleaning industry, evaluating environmental compliance through the use of its surveys. The dry-cleaning industry was selected for study as surveys of dry cleaners accounted for the highest number of responses collected by the Small Business Assistance Program.

One of the most commonly used solvents in the dry-cleaning industry is perchloroethylene. A debate exists over the potential carcinogenicity of this solvent, also known as tetrachloroethylene. While a correlation of exposure to solvent and cancer is not proven, the Environmental Protection Agency, based a results from numerous scientific experiments, considers the solvent a probable health hazard as a carcinogenic. (USEPA 1991, p.59).

Research Purpose

The purpose of the research is three-fold: The first purpose is to describe major environmental legislation of recent decades. Secondly, the study addresses decentralization from federal to state levels within the environmental field, addressing primacy (state acceptance of federal policy) and mandates. Issues of environmental compliance are presented. Lastly, the analysis assesses the self-reported effectiveness of workshops on the dry-cleaning industry by the Small Business Assistance Program, a state program mandated through federal legislation.

This analysis will also include a discussion on the significance of small businesses in today's society. Conclusions will be drawn while outlining certain considerations of the study's results.

Chapter Summaries

Chapter 2 encompasses an overview of environmental regulations. The concepts of New Federalism, primacy, mandates and local governments are also addressed. Compliance principles and environmental issues for small businesses are highlighted. Chapter 3 provides a setting for the study. The environmental agency for the state of Texas will be discussed as well as the Small Business Assistance Program, an independent division of the agency. Chapter 4 describes the study's methodology. The conceptual **framework** for the study is defined and the hypotheses for the study are developed. The research design, survey **instrument** and compliance indicators are discussed. Indicators are linked to specific questionnaire items. Results of the study and statistical analysis is presented in Chapter 5. Chapter 6 concludes the study, identifies considerations and describes recommendations for **further** evaluation.

CHAPTER 2

LITERATURE REVIEW

Introduction

This chapter reviews environmental regulations, compliance issues and the concept of New Federalism. Additionally, environmental concepts of the small business community are discussed. The first portion provides background information on the environmental regulatory system. A discussion of the Clean Air Act (CAA), the Resource Conservation and Recovery Act (RCRA) and other major environmental laws follows. Compliance principles are presented, emphasizing the importance for businesses to achieve environmental compliance.

New Federalism is addressed in the second section. This includes the issues of primacy and federal mandates within the environmental field. Local and state relations with the federal government are also discussed. A specific study is presented to highlight the concerns and opinions of state officials of environmental policy. Also included is a discussion on the importance of small businesses in today's society and the implications of the Clean Air Act to the small business community.

Environmental Law Overview

Environmental law is a complex system of environmental statutes and regulations designed and implemented to protect human health and the environment. The system also pairs statutes and regulations with certain guidelines and case-specific requirements. (Sullivan 1995, p.1).

The environmental law system is an organized way of using all the laws in our legal system to minimize, prevent, punish or remedy the consequences of actions which damage or threaten the environment, public health and safety. (Sullivan 1995, p.6).

The Environmental Protection Agency (EPA) is empowered by environmental statutes to develop and promulgate regulations. In the rule-making process, the public can participate through submitting written comments or attending public hearings. Regulations are published in the Federal Register and final rules are published in the Code of Federal Regulations once a year. (Sullivan 1995, p.3).

Federal statutes, including the Clean Air Act and Clean Water Act, establish federal and state regulatory programs. States can enact and enforce laws to achieve regulatory objectives of Congress that meet federal minimal criteria. For the most part, the states have taken responsibility of regulatory programs when they have had the opportunity. States can have enforcement and permit authorities. If state laws are not effective or stringent enough, federal intervention is possible. (Sullivan 1995, p. 3).

State environmental laws can be more stringent than the federal requirements. In order for businesses to be in compliance with regulations, they must abide by both federal and state regulations. (USEPA 1993b, p.3).

The use of permits is a way for both federal and state governments to establish laws for particular discharges or activities. Permits outline specific limits and types of discharges for organizations. (Sullivan 1995, p.17).

The requirement to obtain a permit and operate in compliance with it is an individualized and highly effective way of insuring that regulators are notified of releases or activities of which they need to be aware. It is also an effective way of assuming and demonstrating that the persons required to comply is on notice of his obligations. (Sullivan 1995, p.17).

Numerous elements are evident in examining the environmental regulatory system. Issues such as environmental protection, rule-making and public involvement, federal and state relations and the use of permits are all key elements in environmental policy.

Many critics argue that **regulation** harms the economy, discourages technology, serves as a disincentive for new businesses and is not cost-beneficial (Kamienieki et al., 1997, p. 109). Numerous studies have been done to determine the advantages and disadvantages of various environmental policies. There is significant political and economic opposition to environmental policy. Industries are **often** weary with environmental laws as compliance may lead to higher costs. Non-compliance may result in fines and prosecution. In our political world, constituents of political leaders may therefore wish to minimize or eliminate environmental regulation.

Nevertheless, **this** study is based on the premise that compliance with existing rules (developed through an existing regulatory system), pollution prevention and resource **conservation** is key to maintaining a healthy, viable economy while protecting the earth's resources and preserving human health.

The number of environmental regulations is vast; the most significant environmental laws are discussed in the next section. Two specific statutes, the Clean Air Act (**CAA**) and the Resource Conservation and Recovery Act (**RCRA**) are highlighted due to their profound environmental impact on industry. The most common compliance issues for businesses pertain to the complying with CAA and RCRA. Other major environmental laws are briefly discussed. Table 2.1 lists a table of acronyms used

throughout this analysis. Table 2.2 summarizes the environmental laws addressed in this chapter.

The Clean Air Act

Clean Air Act (CAA) is a federal law regulating air emissions from area, stationary, and mobile sources. The CAA authorizes the EPA to establish federal requirements, known as National Ambient Air Quality Standards (NAAQS), to protect public health and the environment. The original intent of the CAA **was** to have pollution standards set and reached by 1975. To date, the CAA has been amended two separate years since its passage. (USEPA 1995, p.72).

The CAA Amendments of 1977 and most recently 1990 were implemented to address three major areas of U.S. air pollution: acid rain, urban air pollution and toxic air emissions. (USEPA 1992a, p.1). Intended to be fully attained by the year 2005, the CAA Amendments's goal is to reduce air pollutants by *56 billion* pounds a year. In addition to reducing acid rain, urban pollution and air toxics, the amendments were designed to protect the ozone layer by phasing out the usage of chlorofluorocarbons' (CFCs) and related chemicals. (USEPA 1992b, p.6).

The CAA also requires each state to submit a State Implementation Plan (SIP) to the EPA. A SIP is a collection of regulations developed by each state to reduce pollution. In developing each SIP, the states must have a process in place to involve the public, accomplished through public hearings and opportunities to comment. If the EPA does

¹ Chlorofluorocarbons (CFC's) are chemicals consisting of carbon, hydrogen, chloride and fluorine, and most commonly found in aerosols and refrigerants. CFC's been found to have an adverse affect on the earth's ozone layer.

not approve a state's **SIP**, the EPA can take over **CAA** responsibilities. (USEPA 1993, p. 2).

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) is one of the most **significant** federal environmental laws. Through RCRA, the EPA has the authority to regulate hazardous waste. This statute set forth guidelines for hazardous waste generation, transportation, treatment, storage and disposal. It also encompassed management of non-hazardous solid wastes. (USEPA 1995, p.76).

EPA also was entitled to regulation of underground storage tanks (USTs) under RCRA. USTs **often** entail contamination issues with petroleum and other hazardous materials. (USEPA 1995, p.76)

The 1984 amendments to RCRA, called the federal Hazardous and Solid Waste Amendments (HSWA), reduced land disposal of hazardous wastes. Most significantly, it increased the **EPA's** enforcement authority in regard to hazardous waste management and USTs. (USEPA 1995, p.76).

RCRA initially addressed larger companies, known as "large quantity generators", producing over 2,200 pounds per month of hazardous waste. The regulations were published by the EPA in 1980. The HSWA Amendments of 1984 included smaller generators of hazardous waste (between 200-2,200 pounds per month) in the hazardous waste management system. (Small Business Environmental **Homepage** 1998).

Other Recent Major Environmental Laws

The Emergency Planning and Community Right to Know Act (EPCRA) of 1986 was implemented to protect the public health, safety and the environment through **local** communities. Each state is required to have a Local Emergency Planning Committee (LEPC) for established districts. Members include fire fighters, public health officials, community groups, government representatives and emergency managers. Committees assist local communities from chemical hazards. (USEPA 1995, p.73).

The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) pertains to hazardous waste sites that have been abandoned or to locations that have had severe spills, accidents or other emergency releases of contaminants. The federal government has fees to clean up these sites, which are also known as "**Superfund**" sites. Under CERCLA, the EPA can seek the responsible party and can enforce orders, consent degrees and other small party settlements. State environmental programs can identify, monitor and track response activity of Superfund sites with authorization from the EPA. (USEPA 1995, p.73). CERCLA cleanup activities were authorized under the Superfund Amendments and Reauthorization Act of 1986 (SARA). This legislation included additional standards and technical requirements. EPCRA was authorized **under** Title III of SARA. (USEPA 1995, p.77).

The Toxic Substances Control Act (TSCA) of 1976 allowed for all chemicals produced or imported into the U.S. to be tested, regulated and screened. Because of the potential harm of chemical production, the TSCA requires all chemicals to be tested for toxic effects. Potential harmful chemicals are tracked and monitored under TSCA,

which also supplements the **CAA**, Toxic Release Inventory (TRI) and EPCRA. (USEPA 1995, p.77).

The Safe Drinking Water Act (SDWA) of 1974 protects the water quality for daily use. Specifically, it encompasses all U.S. waters intended for drinking use. With SDWA, the EPA required owners and operators of public water systems to comply with standards, set from authorized state governments. (USEPA 1995, p.77).

The Federal Water Pollution Control Act of 1972 was amended in 1977 and is known as the Clean Water Act (CWA). The original act outlined regulation of discharges of pollutants to waters of the U.S. As a result of the amendment, the EPA received authority to regulate the effluent levels of industry. Secondly, water quality standards were established for surface waters. Under the Act, National Permit Discharge Elimination System (**NPDES**) **permits** are required for discharges into navigable waters from stationary sources. Other amendments to the CWA included regulation of toxic substances and funding for sewage treatment plants. (USEPA 1995, p.73).

The EPA has the authority to delegate permitting, administrative and enforcement activities to the states under the CWA. The EPA oversees program responsibilities of states granted authority of program implementation. (USEPA 1995, p.73).

The Federal Insecticide, Fungicide and Rodenticide Act (**FIFRA**) of 1972 allowed for federal control of the distribution, sale and use of pesticides. The EPA required certain users be registered and certified, ensuring proper labeling for environmental protection. (USEPA 1995, p.74).

**Table 2.1
Table of Acronyms**

Acronym	Definition
CAA	Clean Air Act
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CWA	Clean Water Act
DOJ	Department of Justice
EPA	Environmental Protection Agency
FIFRA	Federal Insecticide, Fungicide and Rodenticide Act
H	Head and Solid
NAAQS	National Ambient Air Quality Standards
NPDES	National Pollutant Discharge Elimination System
RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendments and Reauthorization Act
SBA	Small Business Administration
SBAP	Small Business Assistance Program
SDWA	Safe Drinking Water Act
SIP	State Implementation Plan
SPSS	Statistical Package for Social Scientists
TNRCC	Texas Natural Resources Conservation Commission
TRI	Toxic Release Inventory
TSCA	Toxic Substances Control Act
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank

Table 2.2
Summary of Environmental Regulations

Regulation	Year	Key Provisions
Clean Air Act	1970 Amended 1977 and 1990	Federal law regulating area, stationary and mobile sources. Goal to reduce acid rain, urban pollution, air toxics. Implemented to protect ozone layer by phasing out chemical use. Also requires states to submit State Implementation Plan (SIP) to the EPA.
Federal Insecticide, Fungicide and Rodenticide Act	1972	Allows for federal control of the distribution, sale and use of pesticides. Also requires users to register when purchasing pesticides and to be certified for pesticide use.
Safe Drinking Water Act	1974	Authorizes the EPA to establish drinking water standards for all owners and operators of public water systems. States may also set secondary standards for water quality.
Toxic Substances Control Act	1976	Regulates chemicals manufactured or imported into the U.S. Chemicals intended for the consumer marketplace are required to be tested and screened for toxic effects prior to commercial manufacture.
Resource Conservation and Recovery Act	1976	Set guidelines for hazardous waste generation, transportation, treatment, storage and disposal. Also addresses management of non-hazardous solid wastes. Underground storage tanks (USTs) are regulated under RCRA.
Clean Water Act	1977 Amended from the Federal Water Pollution Control Act of 1972	Outlines regulation of discharges of pollutants to U.S. waters. Amendment authorized EPA to regulate effluent levels of industries. Required the use of NPDES permits for discharges. Regulated toxic substances accounted for certain funding levels for sewage treatment plants.

Table 2.2 Continued
Summary of Environmental Regulations

Regulation	Year	Key Provisions
Comprehensive Environmental Response, Compensation and Liability Act	1980	Provided federal funds for clean up of hazardous waste sites, spills, accidents and other emergency releases of pollutants into the environment. Responsible parties are held liable under the Act. Sites are identified and monitored by the states. Responses are also coordinated by the states.
Hazardous and Solid Waste Amendments	1984	Pertains to regulation of hazardous waste management for small hazardous waste generators.
Emergency Planning Community and Right-to-Know Act	1986	Designed to assist local communities in protecting public health, safety and the environment from chemical hazards.

New Federalism²

Much responsibility for environmental policy formation and implementation shifted to the states during Reagan's New Federalism period. In this era, environmental laws were to entail a "cooperative partnership" between the federal and state governments. States became responsible for administering environmental programs. This left the federal government with limited control, except when state obligations were not met. (Tobin 1992, p. 94).

Kearney and Garey present a historical perspective is given on American federalism. They note that relations between federal and state entities have not always been positive:

The American system of federalism has been a topic of philosophical, legal and political debate since Madison, Hamilton, and Jay authored The Federalist papers over 200 years ago. Although most observers have considered the federal bargain struck by the Founding Fathers a happy and productive one, there have been times when the viability of the system has been severely threatened. (Kearney and Garey 1982, p. 1).

Kearney and Garey add that federalism, for the most part, has been successful. However, while working within a political and economic context, they admit occasional conflicts arose between federal and state governments. (Kearney and Garey 1982, p.I).

Prior to the New Federalism era, numerous state environmental programs indicated they lacked confidence and trust of the EPA. Although many states were

² Much of the existing literature on New Federalism was **written** during Reagan's term. Due to the **limited** information on New Federalism following the Reagan years, this study utilizes much of the research from that time period. One may assume the level of environmental policy-making at the state levels is higher than at the previously held federal level. States are able to provide additional **staffing** as state environmental agencies center their resources on a smaller statewide areas. States are able to handle significantly higher enforcement cases, authorize more **permits** and exemptions, and provide closer assistance to businesses. Regional offices within states are able to carry-out environmental policy at closer levels.

granted primacy, state leaders felt the EPA ignored the states' views in environmental policy making. (Tobin 1992, p. 94).

This may have served as an impetus for Reagan's New Federalism. A major goal of the Reagan administration was to improve intergovernmental relations between the federal and state governments. Throughout the 1980's and early 1990's, the Reagan and Bush administrations attempted to build a partnership between **government** levels, eliminating past federal dominance. (Tobin 1992, p. 94).

During the 1970s, the federal government dominated the relationship through the use of national mandates, constraints, and fiscal and regulatory activities. President Reagan sought to shift governmental responsibilities to states and localities. According to Fitzgerald, a general consensus exists that federalism will not ever return to the level of dominance once obtained by the federal government. Within the environmental field, states have experienced significant increase in responsibilities. (Fitzgerald 1988, p. 98).

New Federalism encompassed decentralization as well as reduced funding from federal to state levels. The Reagan administration centered on the philosophy that citizens did not need advanced federal intervention for solving numerous problems. Reagan supported the notion that state and local governments were best suited to handle poverty, inadequate job training, urban decline, and education in addition to environmental issues. Reagan's initiative also entailed reduced federal grant funding to the states. (Lester 1986, p. 149).

A key component of the decentralization process is the premise that structural changes have increased state and local capacity to govern effectively. Efforts to

strengthen the roles of state and local entities include reapportionment, government reform and reduced regional disparities. According to Lester, the question remains about the ability of state administrators to carry out intergovernmental responsibilities without advanced notice. Due to spillover effects and other factors, it can be a difficult to determine jurisdiction of certain policies. **Furthermore**, states may not be able to effectively carry out certain federal policies due to political, economic and administrative factors. (Lester **1986**, p. 151).

Reagan's initiative included a proposal of seven new block grants, consolidating eight-five federal aid programs. Under the Omnibus Reconciliation Act of **1981**, nine new or revised grants were passed. This resulted in the largest consolidation of federal block grant programs than all previous block grant initiatives combined. (Conlan **1986**, p 31).

Funding levels marked sharp differences between Reagan's federalism policy and those of the **Nixon** and Ford administrations, both proponents of decentralization. Previous administrations accepted higher spending amounts for block **grants** to gain Congressional support. Much attention was focused on the spending reductions of Reagan's federalism, disregarding the benefits of federal block grant consolidation. (Conlan **1986**, p. 31).

Within the environmental field, the Reagan administration developed guiding principles as part of his federalism policy. These were established by the President's Council on Environmental Quality:

1. Regulatory reform, involving extensive use of cost-benefit analysis in determining the value of environmental regulations and programs.
2. Reliance as much as possible on the free market to allocate resources.
3. Decentralization of environmental federalism, **shifting** responsibilities for environmental protection to state and local governments whenever feasible. (Lester 1986, p. 151).

These principles were key elements to Reagan's environmental policy. Under federalism, states are empowered to prioritize programs and objectives. States also control federal funds, and in doing so can gain the trust and confidence of the federal **government**. Disadvantages of federalism include the perceived unwillingness of the federal government to **carry** out environmental policy. State responsibility also may not improve relations between federal and state relations. Advantages and disadvantages of Reagan's New Federalism are outlined in Table 2.3. A survey of state directors of environmental programs is discussed in the next section.

Table 2.3
New Federalism Pros and Cons

Pros of New Federalism	Allows states freedom to prioritize programs and adjust objectives accordingly
	States have greater discretion in how federal funds are spent
	Federal government's willingness to delegate authority will increase trust and confidence of the states
Cons of New Federalism	Seen as little more than effort to reduce budget deficit and an indication of unwillingness to carry out environmental policy
	Increased state responsibility not improved intergovernmental relations
	Some feel mistrust still exists between federal and state governments

(Tobin 1992, p. 101).

Survey of State Directors of Environmental Programs

Directors of state air and water quality programs of 1979, 1985 and 1990 were surveyed for their reactions of Reagan's New Federalism of the 1980's. (Tobin 1992, p.98). As previously noted, New Federalism resulted in an increased the role of environmental decision-making at the state level.

Tobin's analysis assessed how New Federalism has affected federal and state intergovernmental relations. Almost all surveyed state directors felt the EPA excluded involvement of the states. without allowing for adequate input on regulation and policy-making. (Tobin 1992, p. 98).

Tobin concluded state directors perceive that the EPA staff has "no understanding of the real workings of pollution control programs." (Tobin 102). However, states seem to be supportive of assistance from the EPA in enforcement activities. State directors felt little change has occurred with intergovernmental relations with the EPA, and most were similarly dissatisfied prior to New Federalism. While it still may be too early to assess the significance of policy change, preliminary evidence suggests New Federalism has not lived up to its promise. (Tobin 1992, p. 107.)

Other scholars have differing opinions about the success of Reagan's New Federalism. Tobin, however, believes research by other scholars lacks validity because researchers did not consider **information** prior to the New Federalism era. Tobin's analysis encompasses a longer time frame, accounting for long-term gradual effects of decentralization. (Tobin 1992, p. 94).

Prior to the Reagan era, the environmental laws of the 1970's placed primary responsibility on the federal government. Reasons for this emphasis include a perceived lack of commitment by the states or their inability to combat air pollution effectively. At the time, it was argued that states could not implement environmental policy while serving in the public interest. However, according to **Tobin**, numerous states developed effective pollution control programs. (**Tobin** 1992, p. 94).

Lester believes federal funding may eventually be reduced in the long run with the adoption of state implemented environmental policy. Two considerations must be made by states when examining the level of federal aid reductions in regard to environmental policy. First, the degree of commitment by the states to environmental protection must be considered. Second, the degree of the state's dependency on federal aid should be determined. These considerations should predicate when, where and under what conditions states can absorb reductions in environmental aid. (Lester 1986, p.155). Acceptance of environmental authority by the states is referred to as primacy or partial preemption as discussed in the following sections.

Primacy

Federal environmental laws have allowed for states to regulate environmental pollution control programs. Environmental laws contain "primacy", which allows the states to serve as the primary enforcement agency for pollution control. (Crotty 1987, p. 53).

The EPA still has ultimate control over environmental policies. It retains the power to set minimum standards. However, state environmental agencies can enforce laws within their boundaries. By 1987, most states elected to accept primacy. (Crotty 1987, p. 55).

Partial Preemption

As a way to control total preemption of state powers, the federal government uses partial **preemption**. This is when the "federal government returns program responsibility to the states but retains the ultimate authority to decide on the acceptability of the states' actions." (Crotty 1987, p. 54).

While working within federal minimum standards and goals, the states are given flexibility in designing and implementing their own laws. The federal government grants authority to the states, but still retains control. Examples of the preemption scheme include the Clean Air Act of 1970, the Clean Water Act of 1972, the Safe Drinking Water Act of 76, and the Federal Insecticide Fungicide Rodenticide Act of 1978. States have partial enforcement responsibility under various sections of the acts. The EPA enforces federal statutes for states that do not accept primacy. If a state does not successfully comply with national minimum standards, the **EPA** can revoke the state's granted use of primacy. Delegation by Congress to the states may increase as long as states continue to successfully supplement national enforcement efforts. States must be careful to look at the consequences of accepting the burden of pollution control for various policies. (Crotty 1987, p.56).

Primacy may be the ideal mechanism for relieving the federal government of responsibility for providing the financial and staff resources needed to enforce national policies while still retaining ultimate control over those policies. (Crotty 1987, p.55).

According to Crotty's study, the majority of state officials support primacy.

Under primacy, states implement federal policy at the state level, resulting in "regulatory" federalism. This type of federalism is neither cooperative or competitive, but rather a system that utilizes levels of government to carry out policies. Crotty's study revealed both federal and state entities determine the **type** and extent of intergovernmental relations **with** regard to environmental policy. (Crotty 1987, p.66).

The federal government has been successful in some cases in structuring environmental policy. State pollution control programs have been able to decrease their level of financial support through the actions of the federal government. With primacy, a functional framework has been developed by federal and state levels with the implementation of EPA regional offices. (Crotty 1987, p. 67.)

Mandates

The federal government exhibits much control over the states through the use of mandates. Mandates are defined as a unit of governments' constraints or regulations over another unit. In using mandates, the federal **government** requires states to follow within certain guidelines. State activities are limited through the passing of major federal laws, executive orders and court decisions. (Crotty 1987, p.53-54).

"Mandates preempt state powers, predetermine state legislative and administrative responsibilities, and require that state compliance efforts be supervised by officials of the federal **government.**" (Crotty 1987, p.53). Under Reagan's New Federalism, the number of mandates was not substantially reduced. (Crotty 1987, **p.54**).

As previously discussed, primacy involves balancing federal and state roles in carrying out environmental policy. However, in using mandates, the federal government has the power to delegate authority in a variety of areas.

Mandates represent federal intrusions into functional areas that were previously considered to be the province of the states. Preemption represents an asymmetrical relationship where, legally, the federal government is clearly the superior entity. (Crotty, p.56).

The federal government does not have the authority to mandate certain rules. In some cases, the EPA may pass new rules that are not as stringent as the existing federal regulations. States can adopt the entire rule or certain portions of the rule. An example of this is the Universal Waste Rule, an amendment of the RCRA regulations. The Universal Waste Rule is designed to reduce the quantity of hazardous waste added to the municipal solid waste stream. The EPA does not require states to implement the rule, however, it strongly encourages adoption. (US EPA 1996, p. 5).

Local Governments

Although this analysis centers on federal and state relations, local governments deserve mention. One point of interest exists with the relationship between the local and federal levels of government. Criminal and civil penalties may result if local governments cannot meet federal environmental requirements. Costs can be high for

both governments and individuals. According to Kelly, local government managers want the EPA to:

- Improve the science behind decisions
- Encourage flexibility and innovation in meeting regulatory requirements
- Consult with local governments early in the regulatory process
- Provide local governments with technical support
- Educate the public with respect to the benefits of compliance
- Let local governments focus on their greatest risks first
- Better link economic and environmental objectives

(Kelly 1993, p. 2).

Interestingly, over the last decade, the number of local governments that have been sued has risen significantly. The EPA **and** Department of Justice (DOJ) has averaged 54 lawsuits per year for the last decade pursuant to environmental laws, mostly against local governments. Comparatively, lawsuits averaged about 15 per year in the previous decade. Thus, non-criminal environmental lawsuits, filed by government entities, have risen over 250% in comparing the last two decades. (O'Leary 1993, p.1).

States share similar concerns with local governments. State governments may be held accountable under numerous environmental statutes by the federal government. Common violations of states include unauthorized hazardous waste generation, improper hazardous waste management, incorrect disposal or illegal operation of disposal facilities. These violations are mostly found under CERCLA and RCRA federal statutes. (O'Leary 1995, p. 85). Much conflict has been attributed to the overlap of existing CERCLA and RCRA applications in state enforcement of environmental policy. For example, hazardous waste cleanup falls under both CERCLA and RCRA. The EPA is

authorized to handle cleanup activities of certain facilities under CERCLA. Federal agencies support the notion that they preempt RCRA activities at the state level. Regardless of which level has final jurisdiction, much confusion exists within hazardous waste management. (Wise and O'Leary 1997, p.155).

Intergovernmental Relations: A Case Study of an Environmental Issue

Fitzgerald surveyed legislators and cabinet-level executives from Tennessee, Texas and Massachusetts. Respondents were asked for their view on hazardous waste issues and their perceptions of citizens' preferences in their respective states. Respondents were surveyed on the hazardous waste issue on both the national and state level. Results indicated respondents believed that hazardous waste was a severe problem, scoring a virtual tie with crime as the second most serious national problem. On the state level, hazardous waste also ranked second in severity. The respondents identified the most significant problem as the deficit. Hazardous waste ranked second followed by crime, poverty, the arms race, unemployment, high taxes and inflation. About half of respondents polled preferred the state to regulate hazardous wastes. Less than one-third preferred federal legislation. About one-fourth felt hazardous waste should be regulated by both federal and state governments. Furthermore, respondents also felt states should have the power of determining the location of hazardous waste facilities.(Fitzgerald 1988, p.100).

An even clearer consensus emerges regarding what level of government should decide where to locate hazardous waste facilities: about two-thirds of the responding officials agree that the states should retain this decision-making responsibility." (Fitzgerald 1988, p.100).

One reason for such significant concerns for hazardous waste issues is the potential opposition **from** interest groups and the public at large. Furthermore, officials may believe the public will not subscribe to the idea of federal **officials** having the power to determine the location of hazardous waste sites. (Fitzgerald 1988, p.100).

Overall, the study suggests waste management is critical and that strong views exist within the intergovernmental system about the importance of hazardous waste management. State officials also have concerns about financial incentives for managing hazardous waste. The study concluded that officials will have to address hazardous waste issues while operating within the parameters of national and state policy. (Fitzgerald 1988, p.103).

Fitzgerald's study illustrates that many state officials recognize the importance of hazardous waste problems and have formed definite views regarding their responsibilities for managing the problem within the intergovernmental system. The general consensus favoring state responsibilities for regulating hazardous wastes and siting disposal facilities implies that the Reagan administration's efforts to devolve these program responsibilities to the states is a popular one among state officials. (Fitzgerald 1988, p.103).

Regardless of the which level of government has responsibility for administering environmental policy, the issue of compliance is crucial. In order for an effective regulatory system to exist, business must cooperate with existing regulations and achieve environmental compliance.

Environmental Compliance Principles

Background information on environmental laws provides insight on the types and complexity of regulations that are **required**. The concept of compliance is also crucial; achieving and maintaining environmental compliance is required for all organizations.

The following compliance principles were established to provide a framework for organizations to develop an effective environmental management program.

1. Everyone is responsible for environmental law compliance and to protect against individual liability. Everyone should continually demonstrate concern and diligent efforts to comply.
2. Providing appropriate education and training as well as sufficient informational resources is a good demonstration of concern for compliance and key to a successful environmental management program.
3. The best answer to the question of what can be done to prevent violations and minimize liability is an appropriate corporate "culture" or management structure **formulated** with a view to environmental objectives and aggressively implemented.
4. The objective of an effective program is to provide the organization's officers and employees with the knowledge, resources and motivation required to meet and exceed requirements.
5. After your compliance system is in place, periodic "audits" to verify compliance and identify areas where compliance can be improved will be helpful. (Sullivan 1995, p. 42-43).

Environmental compliance is critical to maintain human health and to protect the environment. An assessment of environmental damage as a result of noncompliance would involve an elaborate discussion. For the purposes of this study, examples of noncompliance (i.e. an increase in pollution) are briefly highlighted.

Air pollution may result in respiratory illness, crop damage, soiling of materials, and aesthetic degradation. This in turn can result in higher medical expenses and cleaning costs, lower crop yields and devalued property. Water pollution can result in pathogenic organisms or toxic materials in drinking water, decreased health of aquatic life and reduced water-related activities. These examples only begin to confirm the significance of compliance in protecting the environment and human health. (Dixon, et. al., 1988, p. 12).

Compliance issues are applicable to all businesses. This study pertains specifically to small businesses. Background information on small businesses and the federal law resulting in the creation of the Small Business Assistance Program is briefly discussed. Compliance objectives from the CAA are discussed. The remainder of this analysis examines the self-reported effectiveness of workshops conducted by the SBAP, a division of the Texas Natural Resource Conservation Commission (TNRCC).

Small Business

The definition of a small business is a firm that has fewer than **500** employees, as defined by the Small Business Administration (SBA). The total number of U.S. small businesses grew to **23.3** million in **1996**, with new small business formation reaching a record level **842,357**. Over **16** million small businesses are sole proprietorships. Since **1982**, the number of small businesses have increased nearly **60** percent. This has a significant impact on U.S. workers as small businesses employ over **53** percent of the private **non-farm** workforce. Moreover, of the **2.5** million new jobs created in **1996**, **64**

percent were produced by small-business-dominated industries. (SBA facts about small businesses 1997, p. 1).

Small businesses are crucial component to the economy. Individually, they are not capable of significantly affecting price movements of the market. Thus, small businesses are able to maintain the level of economic viability. In comparison to large businesses, they are viewed as more innovative and adaptable. Specialized services and products are **often** a result of the small business sector, and are key to creating jobs as they have higher growth rates than large corporations. (Denes 1997, p. 2). Small businesses, however, are also a significant source of environmental pollution.

Environmental Laws: Small Businesses

As part of the CAA Amendments of 1990, federal controls were made on air pollution sources, with significant implications to small businesses. Numerous studies resulting to the passing of the amendments showed small business contributed heavily to air pollution. The CAA Amendments sought to address air pollution by placing new federal controls on smaller sources. CAA Section 507 required all state governments to formulate a Small Business Technical and Environmental Compliance Assistance Program to assist small businesses with the new federal standards. (USEPA 1993a, pp. 4-6).

The effectiveness of these programs is crucial as states continue to enforce federal laws. Compliance assistance programs' importance will only increase as states

adopt the federal operating **permit** program, a significant environmental regulation. (Texas Association of Business 1994, p. 6).

The CAA outlines specific objectives to assist small businesses. These objectives were put in place to educate small-business owners on how to comply with regulations as applied to their industry.

- 1. Broaden State Government Oversight and Management:** Oversight, management and enforcement responsibilities will be implemented by state governments upon approval of the EPA.
- 2. Utilize Market Forces and Principles:** The EPA will assist businesses with minimizing compliance costs while working to improve the environment. Certain economic incentives will be in place by the EPA.
- 3. Encourage New Technologies and Pollution Prevention:** New technologies reduce compliance costs while benefiting the environment. Pollution prevention allow for long-term savings with making equipment, process and chemical changes to industry practices.
- 4. Strengthen Enforcement Provisions:** Penalties for non-compliance of environmental regulations are more stringent as a result of the CAA Amendments. Civil and criminal penalties are enforced.
- 5. Provide Assistance to Small Businesses:** Section 507 of the CAA specifically addresses small businesses. State governments are required to implement technical and compliance programs. (USEPA 1993a, pp. 4-6).

The previous sections of this study is intended to provide the reader with a foundation to understand the environment regulatory process, intergovernmental relations, compliance issues and the significance of small businesses. One method to ensure compliance with environmental pollution is to inform business owners about their environmental responsibilities.

The Small Business Assistance Program, part of the Texas' environmental agency, is the program responsible for providing technical and compliance assistance to **small-**business owners of the state. The state's environmental agency, the Texas Natural Resource Conservation Commission, estimated that over 60,000 small businesses are affected by both federal and state environmental compliance requirements. (State Small Business Advocate 1994, p.1). Different from the federal definition, Texas' Small Business Assistance Program defines a small business as an independently owned and operated facility with 100 employees or less.

The **SBAP's** workshops, which are specifically presented to the dry cleaning industry, is examined. Both air and hazardous waste issues are discussed. An overview of the state's environmental agency, the Texas Natural Resource Conservation Commission, and the Small Business Assistance Program is presented in Chapter 3.

CHAPTER 3

SETTING

Introduction

The purpose of this chapter is to discuss the Texas Natural Resource Conservation Commission, the state's environmental agency. The Small Business Assistance Program is also discussed, which is as an independent division of the agency. The types of assistance provided by the program are described. Hypotheses and the conceptual framework of the study are presented. The content of workshops conducted for the dry-cleaning industry is also discussed, specifically focusing on air and hazardous waste regulations.

Texas Natural Resource Conservation Commission

The mission statement of the state's environmental agency presented. Guiding principles established to assist the TNRCC with accomplishing their mission follows.

Mission Statement

The Texas Natural Resource Conservation Commission strives to protect our state's precious human and natural resources, consistent with sustainable economic development. Our goal is clean air, clean water, and the safe management of waste, with an emphasis on pollution prevention. We are committed to providing **efficient**, prompt, and courteous service to the people of Texas, ever mindful that our decisions must be based on common sense, good science, and fiscal responsibility. (Texas Natural Resource Conservation Commission 1998, p.1).

Guiding Principles of the Texas Natural Resource Conservation Commission

- To promote and foster voluntary compliance ~~with~~ environmental laws.
- To ensure that regulations promote flexibility in achieving environmental goals.
- To ensure that regulations and decisions are rational and based on common sense, good science, and current risk factors.
- To ensure that regulations are applied clearly and consistently.
- To ensure meaningful public participation in the decision-making process.
- To ensure that commission decisions follow the law.
- To ensure strict, sure and just enforcement when environmental laws are violated.
- To ensure that unnecessary, ineffective, or redundant regulations and processes are eliminated whenever possible.
- To ensure that this agency is dedicated to serving the people of Texas and to hire, develop, and retain a high-quality, diverse workforce. (Texas Natural Resource Conservation Commission 1998, p.1).

The Small Business Assistance Program

The SBAP of the TNRCC assists small businesses throughout the state with environmental issues. The program helps business owners achieve compliance ~~with~~ environmental **regulations** in a variety of ways. Business owners may call the SBAP **hot-line**, read industry guidebooks developed by staff and attend workshops conducted by employees of the SBAP. Although the SBAP assists all industries, workshops and guidebooks focus on the more common small businesses in Texas. They include dry cleaners, auto service shops, metal finishers, wood finishing facilities, thermoset resin facilities, and **autobody** facilities.

This research focuses on the self-reported effectiveness of dry cleaning workshops conducted employees of the SBAP. Although the program has presented to a variety of industries, the most common has been dry cleaners. The SBAP underwent a measurement initiative in FY 1997. Since then, the highest number of workshops and surveys have been on the dry-cleaning industry. Due to the availability of data, workshops conducted for the dry-cleaning industry will be analyzed.

The purpose of the workshops is to provide compliance and technical assistance to industries. Small-business owners often do not have the resources to hire environmental consultants. The Small Business Assistance Program's goal is to solve this conflict by educating business owners of applicable regulations. Small-businesses may be fined or may face criminal penalties if they are found to be non-compliant. Furthermore, environmental protection will be jeopardized if small-business owners do not adhere to environmental regulations. The workshops include information on air and hazardous waste issues for dry-cleaning facilities. The following section presents two hypotheses developed from the workshops. The specific type of information presented at the workshops is discussed, addressing air and hazardous waste regulations.

Conceptual Framework

Hypothesis 1: The Small Business Assistance Program's workshops, specifically presented to the dry cleaning industry, will result in an increase of self-reported compliance in air regulations.

Hypothesis 2: The Small Business Assistance Program's workshops, specifically presented to the dry cleaning industry, will result in an increase of self-reported compliance in hazardous waste regulations.

Environmental compliance is examined in two indicators as they pertain to the dry-cleaning industry as addressed in the hypotheses. The environmental considerations are proper air authorization and hazardous waste management. If owners do not meet the requirements of either media, they are non-compliant. It is important to consider the intention of Small Business Assistance Programs' workshops: to increase environmental compliance through educating small-business owners on the regulations. A copy of the Small Business Assistance Program's survey is in **Appendix A**.

Air Indicators

Any business that produces air emissions must have proper air authorization from the TNRCC in order to be in compliance. Air authorization is obtained by either an air permit or a standard exemption. There are over 100 standard exemptions for Texas businesses for select industries. The primary exemption for dry cleaners is Standard Exemption No. 9. It exempts:

Equipment used exclusively for steam or dry cleaning of fabrics, plastics, rubber, wood or vehicle engines or drive trains. (Small Business Assistance Program 1995, p.10).

In order for dry-cleaning owners to be in compliance with air regulations, owners must maintain records of the quantity of solvent used in their dry cleaning process. Records must indicate the number of gallons of solvent used. Dry-cleaning facilities use either petroleum-based solvents or perchloroethylene. The type and amount of solvent used by dry-cleaners predicates whether a business can qualify for a standard exemption or an air permit. To meet the requirements of a standard exemption, dry-cleaning

facilities must not emit more than 25 tons of volatile organic compounds (VOCs) per year. VOCs are the air pollutant most associated with dry-cleaning facilities. Both petroleum-based solvents and perchlorethylene contain VOCs. Dry-cleaning facilities can use up to 7,500 gallons of petroleum-based solvent per year to qualify for the standard exemption. Dry cleaners may use up to 3,500 gallons of perchloroethylene to meet the exemption requirement. If dry-cleaning facilities use more than the specified amounts, they must obtain an air permit. Records of solvent indicate whether dry cleaners are in compliance with the air regulations. (Small Business Assistance Program 1995, p.11).

Of the surveys included in the analysis, the second questionnaire item was altered. Originally, the question surveyed respondents on whether they had a permit or an exemption. The questionnaire item changed to whether respondents using perchlorethylene registered their machines with the EPA. Registration is required for perchlorethylene dry cleaning facilities. Without registration, a facility is considered out of compliance with air emissions.

Dry-cleaning facilities using perchlorethylene must also have records of weekly maintenance inspections. Additionally, perchloroethylene users must submit a compliance report to the EPA. These actions must be done in order to be in compliance with air regulations. Conversely, dry cleaners using petroleum-based solvents do not have to adhere to any additional requirements other than recordkeeping of the amount of solvent used in their processes.

Hazardous Waste Indicators

Dry-cleaning facilities must properly manage their hazardous waste. Hazardous waste regulations are in place to ultimately protect against groundwater contamination. Chemicals from the dry cleaning process can be **harmful** if leached into drinking water in sufficient amounts.

In order for dry cleaners to be in compliance with hazardous waste regulations, they must first properly make a hazardous waste determination. This is crucial as the amount of generated hazardous waste predicates the level of reporting required to the TNRCC. Typical dry cleaning wastes include used and unused solvent, residue from the drycleaning process and wastewater. Wastes must be properly be categorized as hazardous or non-hazardous as amounts determine proper disposal and removal requirements.

Dry cleaners must also maintain records on the quantity of hazardous waste generated at their facility. Records should be kept on a monthly basis. Improper recordkeeping may result in fines as it is required to be considered in compliance with hazardous waste regulations.

Hazardous waste must also be removed and disposed of properly. Time and accumulation requirements are determined by the amount of generated hazardous waste a dry-cleaning facility produces. Only approved disposal facilities may accept hazardous waste. Dry cleaners that do not meet these established requirements will be considered noncompliant with hazardous waste management regulations.

Workshops are intended to increase environmental compliance with air and hazardous waste regulations. Chapter 4 discusses how the survey's methodology is used to test the hypotheses.

CHAPTER 4

METHODOLOGY

Introduction

The purpose of this chapter is to describe the methodology used to test the hypotheses. Certain considerations of the research design, highlighting strengths and weaknesses, are presented. The survey instrument is presented. The conceptual framework is operationalized as environmental indicators are linked to the hypotheses.

Research Design

A key component to this study is the self-reporting of surveys. This is crucial when making conclusions about workshop effectiveness as correlated to environmental compliance behavior. In order to truly assess environmental compliance, environmental site assessment visits would have to be conducted by an objective third-party. This research, however, incorporates surveying attendees of workshops on whether they believe they achieved compliance as a result of attending the workshops. Results can indicate strengths and weaknesses of the workshops and surveys currently in place. With this study, **SBAP's** workshops can be modified to more effectively address compliance issues. Measurement of compliance may also improve as inaccuracies of the surveys may be identified.

This study does not incorporate the use of a control group as the **SBAP's** surveys are already in use. Without the use of a control **group**, certain validity issues are present. Behavior can be attributed to certain actions by using a control group. For instance, if a

study uses a control group, a certain activity may be tested on subjects of study and a control group. Behaviors can be compared of both parties to determine significance of change. Without the use of a control group, an assumption is made that any behavior change is correlated to the tested activity. In this case, workshops are assumed to have an effect on compliance behavior.

Strength of Pre-TestPost-Test Research Design

A benefit of using a **pre-test/post-test** research design is the evidence of trends, indicated by comparing samples. Results can reflect positive, neutral or negative effects of applied actions. This particular study provides evidence of behavior modification through the use of pre-test and post-test surveys. The design structure allows for one sample of results to be compared to another sample of results. Comparisons of the samples can indicate change in environmental compliance. Analysis can be made on level of environmental compliance as a result of attending the workshops.

Weakness of Pre-TestPost-Test Research Design

In using **pre-test/post-test** research design, certain threats of internal validity exist. Because a control group is not utilized, it is critical for the studied sample to be significant in size. With a low sample size, group comparisons will not be valid. This analysis does not include a large sample size as existing data is used. However, certain trends can be identified and future studies can be made with larger samples.

Survey Instrument

An additional point of discussion is the use of a preexisting instrument, *i.e.* pre-test/post-test surveys. Because this study utilizes surveys which contain previously developed questions, a bias is present. **An** assumption exists that the incorporated survey questions relate directly and accurately to the hypotheses.

Utilizing standardized questions, however, facilitate measurement. **Furthermore**, using similar questions to respondents allows for comparisons to be made. As this study incorporates pre-test and post-test surveys, accurate measurement is critical. Surveys also address specific issues as they relate to the research question, validating the effectiveness of analysis. However, surveys may be misleading as they may simplify complex topics. Secondly, attitudes and perceptions may not be accurately considered in using surveys. (Babbie 1995, p. 273-274).

Compliance Indicators

Descriptive categories are developed and directly related to the self-reported effectiveness of environmental compliance. The survey is divided into Air Indicators and Hazardous Waste Indicators.

In utilizing existing pre and post-test surveys, specific questionnaire items are linked to two descriptive categories: Air Indicators and Hazardous Waste Indicators. As previously discussed, Air Indicators relate to records of solvent use, registration, maintenance of inspection records and submission of a compliance report. Hazardous Waste Indicators relate to hazardous waste determination, generator status

recordkeeping, hazardous waste removal, and hazardous waste disposal. Tables 4.1 links the component of the environmental media to each survey questionnaire item.

Table 41

Operationalizing **the** Conceptual Framework
Dry Cleaning Industry

Environmental Media Components	Method Used	Questionnaire Items
I. AIR INDICATORS		
Gallons of Solvent Records	Survey	Do you have records showing the number of gallons of solvent you used last year?
Registration of Machines	Survey	If your facility uses perchloroethylene, have you registered your machine with the EPA?
1 1i	Survey	If your facility uses perchloroethylene do you have records your weekly maintenance inspections?
Compliance Report	Survey	If your facility uses perchloroethylene , have you submitted your compliance report to the EPA?
II. HAZARDOUS WASTE INDICATORS		
Hazardous Waste Determination	Survey	Do you currently have a process in place to help you decide which of your wastes are hazardous and which are not ?
Recordkeeping of Hazardous Waste Generation	Survey	Do you currently keep records of the hazardous waste that your shop creates on a monthly basis?
Hazardous Waste Removal	Survey	Do you currently have your hazardous waste removed from your facility within the required time and quantity limits ?
Hazardous Waste Disposal	Survey	Is your hazardous waste currently disposed of at an approved facility?

The survey includes questionnaire items on Air and Hazardous Waste Indicators. Four questions are asked for each environmental media, totaling eight. The SBAP intentionally limited the number of survey questions to achieve a sufficient response rate. Questionnaire Items 1-4 are linked with Air Indicators. Records of used gallons of solvent must be kept. Perchloroethylene machines must be registered with the Environmental Protection Agency (EPA). Records of weekly maintenance inspections must also be kept and a compliance report must be submitted.

For Hazardous Waste Indicators, questionnaire items 5-8 each represent individual categories of hazardous waste management. Item 5 relates to making a hazardous waste determination. Item 6 refers to monthly recordkeeping. Removal and disposal of hazardous waste management are tied to questionnaire items 7 and 8. Table 4.2 outlines the compliance standards for both Air Indicators and Hazardous Waste Indicators.

Table 4.2

Environmental Compliance: Air and Hazardous Waste Indicators

Environmental Media	Compliance Standard
Air Indicators	Records showing number of gallons of solvent used last year
	Air permit OR perchloroethylene machine owners have registered machines with EPA
	Perchloroethylene machine owners have records of weekly maintenance inspections
	Perchloroethylene machine owners have submitted compliance report to the EPA
Hazardous Waste Indicators	Process in place for hazardous waste determination
	Monthly records indicating quantity of hazardous wastes
	Removal of hazardous wastes within required time and quantity limits
	Disposal of hazardous waste to an approved facility

These categories of Air and Hazardous Waste Indicators both relate to the hypotheses, addressing the self-reported effectiveness of the SBAP's workshops. Results of surveys from questionnaire items will measure the level of self-reported environmental compliance. Respondents have completed both pre-test and post-test surveys. A statistical analysis is conducted on data from survey results and conclusions are drawn.

Respondents answer each compliance question by selecting one of the following options: "YES", "NO", "?", and "N/A". Workshop attendees are instructed to complete the pre-test survey prior to the presentation. From the attendance list, post-test surveys are mailed 60 days following the workshop. Post-test surveys are identical surveys to the pre-test surveys.

Sampling Size

The total number of surveys collected is 54. Thirty-eight pre-surveys and **twenty-six** post-surveys have been returned. The population of the respondents mostly consists of small-business owners, specifically owners of dry cleaning facilities. Data from pre-test surveys will be analyzed indicating environmental compliance. Statistical analysis is **performed** on the samples of pre-test and post-test surveys. This is conducted on each environmental compliance questionnaire item.

Responses of "YES" answers are assigned a point value of 1. "NO" and "?" are counted as 0. "N/A" is not included in the statistical analysis as the environmental compliance issue is considered not applicable. These answers are coded as "8" and questions that are not answered are coded as "9". In doing so, the analysis does not

consider answers do not pertain to the study. Pre-test surveys will be identified as "0" and post-test surveys will be from 1. This allows for the software analysis to categorize the surveys of study.

Results are discussed and conclusions are made. Findings assess the degree of environmental compliance (self-reported). Issues of concern and recommendations are discussed based on the analysis. The SBAP may consider the results and modify the content of its workshops for the future.

CHAPTER 5

RESULTS

Introduction

This chapter discusses the results of the administered pre-test and post-test surveys of air and hazardous waste indicators. Statistical analysis is also presented. Each individual questionnaire item and the environmental compliance issue is discussed.

Survey Results

The results of the study were mostly inconclusive due to the low number of surveys. However, the gathered results may assist with future analysis. **Table 5.1** summarizes the results of the study for Air Indicators. **Table 5.2** indicates survey results on Hazardous Waste Indicators.

Statistical analysis was performed on each of the questionnaire items. This was accomplished by using the Statistical Package for Social Scientists (SPSS). In order to indicate statistical significance of the workshops, the z-test statistical result must be .05 or less for each item.

Air Indicators

To achieve compliance with air regulations, owners must comply with certain issues. Hypothesis 1 states the workshops will have a positive effect on environmental compliance with air indicators. Four elements of air compliance associated with the dry-

cleaning industry are discussed below. Results were statistically insignificant due to the low number of responses.

Gallons of Solvent

The first questionnaire item pertains to the records of used gallons of solvent. In order to be in compliance, the dry cleaning owner must keep records. Most notably, 100% of the responses (16) reported recordkeeping of their gallons of used solvent.

Permit/Registration

There were two versions of the second question. The original questionnaire item pertained to the use of a permit. During the period of conducting workshops, the SBAP implemented a revised survey with the second question altered to registration requirements. Because two separate questions were asked, results are inconclusive. Statistical analysis is not valid because comparisons cannot justifiably be made.

Weekly Inspections

Weekly maintenance inspections must be performed to be in compliance. As with recordkeeping of used gallons of solvent, 100% of respondents (10) indicated compliance in following workshop attendance. Pre-test workshop results indicated 72% of respondents reported compliance with weekly inspections.

Compliance Report

A compliance report must be submitted by users of perchlorethylene, a dry-cleaning solvent, in order to be in compliance. Post-test survey respondents indicated 80% submittal of the required compliance report. Prior to attending the workshop, only 56% indicated report submittal.

Hazardous Waste Indicators

Hypothesis 2 states environmental compliance of hazardous waste regulations will increase by attending the workshops. Owners of dry-cleaning facilities must properly determine which of their wastes are hazardous, maintain monthly records of hazardous waste, and properly remove and dispose of their hazardous wastes within time and accumulation standards.

Hazardous Waste Determination

Owners must have a process in place to determine **which** of their wastes are hazardous. Respondents indicated 86% (15) complied with the requirement following attending the workshop. Less than 50% reported having a process in place prior to the workshop.

Hazardous Waste Records

To be in compliance, the facility must keep records of hazardous waste generation on a monthly basis. Results showed a 20% in compliance with monthly

recordkeeping requirements. The increase in hazardous waste determination and monthly recordkeeping as a result of the workshops is statistically significant.

Hazardous Waste Removal

Owners must also remove their hazardous wastes within the required time and quantity limits. It is important to note this was not statistically significant. This may be an indication of how **SBAP's** workshops should be modified, as discussed in the next chapter.

Hazardous Waste Disposal

Hazardous waste must be disposed of at an approved facility for owners to be in compliance. Nearly 93% indicated proper disposal following workshop attendance. One point of interest is the high percentage of respondents indicating proper disposal prior to attending the workshop.

Table 5.1 and **Table 5.2** indicate the pre-test and post-test survey results. Chapter 6 discusses the recommendations and addresses issues of concern for the survey currently in place at the Small Business Assistance Program.

Table 5.1

Survey Results: Air Indicators

Air Indicators	YES Response Percentage Pre-Test	YES Response Percentage Post-Test
Records showing number of gallons of solvent used last year (N)	81.1 (37)	100 (16)
Air permit OR perchlorethylene machine owners have registered machines with EPA (N)	Inconclusive	Inconclusive
Perchlorethylene machine owners have records of weekly maintenance inspections (N)	72 (25)	100 (10)
Perchlorethylene machine owners have submitted compliance report to the EPA (N)	56 (25)	80 (10)

Table 5.2**Survey Results: Hazardous Waste Indicators**

Hazardous Waste Indicators	YES Response Percentage Pre-Test	YES Response Percentage Post-Test
Process in place for hazardous waste determination (N)	48.7 (37)	86.7* (15)
Monthly records indicating quantity of hazardous wastes (N)	65.7 (35)	85.7* (14)
Removal of hazardous wastes within required time and quantity limits (N)	81.3 (32)	71.4 (14)
Disposal of hazardous waste to an approved facility (N)	90.6 (32)	92.9 (14)

* $P \leq .05$. One-tailed test. See *Elementary Statistics* by Roger Kirk for additional information.

CHAPTER 6

CONCLUSION

Introduction

The results of the survey were not statistically significant, except on two occasions. Most importantly, the number of surveys need to increase in order to properly assess workshop effectiveness. Certain benefits of attending the workshops are not necessarily reflected in the survey results, such as increased **knowledge** of requirements and familiarity of terminology. The final section discusses some of the considerations of the survey and further recommendations.

The Hypotheses of the study are as follows:

*Hypothesis 1: The Small Business Assistance Program's workshops, specifically **presented** to the dry cleaning industry, will result in an increase of self-reported compliance in air regulations.*

*Hypothesis 2: The Small Business Assistance Program's workshops, specifically presented to the dry cleaning industry, will result in an **increase** of self-reported compliance in hazardous waste **regulations**.*

One may not necessarily **attribute** the increase of environmental compliance to workshop attendance, except in two instances. Compliance issues of hazardous waste determination and hazardous waste recordkeeping **indicated** significant increases.

Considerations

As previously mentioned, surveys were self-reported. Small-business owners often times fear enforcement. Respondents may indicate they are in compliance for fear of an inspection. The SBAP has a confidentiality policy and does not share information

with enforcement. Regardless, owners still have concerns. Surveys may need to state the SBAP's confidentiality policy.

Another consideration of the survey is that questions may be misunderstood. For example, the survey asks if respondents make a hazardous waste determination. This process is a complicated one. Owners may not know the criteria for determining a hazardous waste and may assume their waste is non-hazardous.

Although many dry-cleaning owners attend the workshops, environmental consultants and trade association leaders may also attend. Surveys do not ask the respondent if they are a business owner. The question may need to be added to the survey in place.

The study utilizes the collected survey results. It is important to note that the surveys are only representative of the individuals attending the workshops. While only a partial number of dry-cleaning owners throughout Texas attend the workshops, the SBAP should continue to increase the number of workshops, improving the SBAP's effectiveness. This is especially important as Texas may accept delegation of federal environmental policy. If acceptance occurs, a significant increase in the number of inspections of dry-cleaning facilities is likely.

The discussion on federalism provided insight into the complexity of federal and state intergovernmental relations within the environmental field. With other states accepting delegation in the future, the relationship between federal and state governments will become increasingly important. A cooperative relationship must exist in order to effectively implement environmental policy.

Attendees of workshops may benefit from the workshops, although it may not be reflected in the results. Increased knowledge of environmental regulations may result. A goal of the workshops is to provide technical information to owners in an **easily-**understandable format. Familiarity with the terminology may assist owners in complying with regulations in the future.

Recommendations

The surveys in place at the SBAP may be altered to improve accuracy. It is crucial for questions to be clear to the reader. Questions should not be **conditional**. Surveys should also poll the attendee if they are in fact an owner or if they have another job function.

Both pre-test and post-test surveys need to increase to prove statistical significance. The SBAP will continue to conduct workshops throughout the state, so the number of responses should increase.

The SBAP utilizes surveys for multiple industry workshops. Surveys for other industries need to be re-examined as the number of workshops are expected to increase. More accurate measurement of compliance issues for all industries can assist the SBAP in targeting areas of compliance. Considering the results of the analysis and future studies, workshops can be modified to address specific areas of non-compliance. Other activities in the department, such as outreach, hot-line assistance, etc. can be modified.

As previously mentioned, workshop attendees gain certain benefits that are not reflected in the survey results. Attendees become familiar with terminology pertaining to

the environment. They also learn about the applicable regulations. Surveys should be developed to capture this benefit.

Texas' Small Business Assistance Program is one of the only programs in the nation to measure workshop effectiveness. Once fully developed, the measurement tool may not only become a model for analyzing other industries, but for aiding compliance assistance programs nationwide.

Appendix A
DRY CLEANERS
Pre/Post Test Survey

Air Indicators

- | YES | NO | ? | N/A | |
|--------------------------|--------------------------|-------------------------------------|-------------------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 1. Do you have records showing the number of gallons of solvent you used last year? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | 2. If your facility uses perc , have you registered your machines with the EPA? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 3. If your facility uses perc , do you have records of your weekly maintenance inspections? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 4. If your facility uses perc , have you submitted your compliance report to the EPA? |

Hazardous Waste Indicators

- | YES | NO | ? | N/A | |
|--------------------------|--------------------------|-------------------------------------|-------------------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 5. Do you currently have a process in place to help you decide which of your wastes are hazardous and which are not? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 6. Do you currently keep records of the hazardous waste that your shop creates on a monthly basis? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 7. Do you currently have your hazardous waste removed from your facility within the required time and quantity limits? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | 8. Is your hazardous waste currently disposed of at an approved facility? |

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