AN EVALUATION OF THREE EPA PUBLIC SCHOOL RISK COMMUNICATION PROGRAMS: ASBESTOS, LEAD IN DRINKING WATER AND RADON

Final Report

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Under Subcontract to:
Research Triangle Institute
U.S. EPA Contract No. CR-814767-02-0

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September 18, 1990

[SCHOOL]

ACKNOWLEDGEMENTS

Many individuals greatly enhanced the quality and enjoyment of this research. Most importantly, we thank the nearly 900 state agency, regional EPA, and school district personnel in 9 different states who participated in the varying stages of the research. While not every comment from these participants could be included in the report, we have attempted to be faithful in accurately reporting the thrust of the information provided to us. We also thank the state school board associations in the nine states for sending out advance notification of the district surveys.

At the U.S. EPA, we were greatly aided by William O'Neil and Ann Fisher on the overall design and execution of the project. Program office support was provided by Jeanne Briskin, Jeff Cohen and Peter Lassovszky in the Office of Drinking Water; Anita Schmidt and Dennis Wagner in the Radon Office; and Barbara McCoy and Betty Weiner in the Asbestos Office. We also thank Kate Herber of the National Association of School Boards, whose assistance at the beginning of the study was invaluable.

Our thanks to Mike Regan of the Research Triangle Institute for his work in pre-testing the survey instrument with school districts in North Carolina. Our in-house survey implementation and report production were supported by Dale Willingham.

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1.0 INTRODUCTION

1.1 BACKGROUND AND OBJECTIVES

The U.S. Environmental Protection Agency (EPA) has, over the last decade, become more active in developing programs to inform the public of environmental risks and of steps that can be taken to test for and reduce these risks. These programs are often used instead of, or in addition to, regulations that require specific actions to be taken. Several of EPA's efforts have been targeted toward public schools. During the past several years, and in concert with Congressional mandates, EPA has promulgated regulations to manage asbestos-containing materials in public schools and has developed guidelines on testing for and remediating environmental risks associated with lead in school drinking water and radon in public schools. An early emphasis has been placed upon reducing risks at schools because children may be more susceptible than adults to these environmental risks, both in terms of dose-response and in terms of total remaining years of potential exposure.

This report provides an evaluation of the EPA public school risk communication programs for asbestos-containing materials, lead in drinking water, and radon. These programs have consisted largely of developing and distributing written materials to aid public schools in understanding the problems, the risks, and the steps to test for and remedy situations that might pose potential health risks. In some cases, EPA has also developed and implemented workshops, training sessions and provided other support. This evaluation focuses upon the characteristics and effectiveness of the EPA materials, the EPA information dissemination procedures, and the overall program strategies. The effectiveness of these three EPA programs is measured in terms of how successful the programs have been at disseminating useful information to, and motivating action on the part of, state agencies and local school districts.

The three programs were examined in nine different and diverse case study states. The role of state government is critical because in each of the three programs the EPA has delegated much of the program responsibility to the states. The case study states illustrate the many different ways that the EPA programs have been received and implemented at the state level and identify how different state actions affect the EPA's risk communication programs. In each of the case study states, and for each of the three programs, there were two levels of data collection:

1. Semi-structured interviews were conducted with regional EPA and state agency personnel charged with program responsibility. These interviews helped to define what, if any, state actions resulted from, or occurred in conjunction with, the EPA programs; and helped define other characteristics of the state

environment (state requirements and efforts, political circumstances, funding, public and media pressure, etc.) that might affect the success of the EPA programs. In addition, these key individuals provided their insights about the EPA programs. These interviews were conducted in two waves: one each at the beginning and the end of the research.

2. A mail survey was completed with a random sample of local school districts in each case study state. These surveys concerned risk perceptions, public pressure, familiarity with the relevant regulations or recommendations, familiarity with and rating of EPA materials and programs, and status of testing and remediation efforts. Specific attention was given to determining if the districts had received the EPA materials, if they had used the EPA materials, and their attitudes about EPA assistance. These surveys were conducted with the use of two survey instruments: one covering lead in drinking water and radon, and one covering asbestos-containing materials.

Through these steps each program was analyzed and the three programs compared. This allowed an examination of what characteristics of the different programs enhanced or hindered the success of these types of programs and where more effort or focus is needed.

1.2 REPORT ORGANIZATION

Chapter 2 of this report provides additional detail on the hypotheses to be addressed in the analysis and the data collection procedures. Chapter 3 provides general results applicable to all three programs. These include mail survey response rates and analysis of the experience and representativeness of the survey participants. Also reported are local school district responses on how these environmental issues compare in terms of perceived health risk and public pressure to other health issues facing public schools.

Chapters 4, 5 and 6 report, in turn, upon the program implementation and effectiveness for the EPA asbestos-containing materials, lead in drinking water and radon public school programs. For each program, the federal environment and EPA risk communication strategies are summarized and the state environment is reviewed for each case study state. Next, the results of the local school district surveys are reported and summary conclusions provided.

Chapter 7 summarizes the findings by first comparing key results across states and programs. This allows one to ascertain characteristics of the programs and to see which state environments are most and least influential to the success of EPA's efforts. Summary conclusions of the overall evaluation are also provided.

2.0 STUDY DESIGN

2.1 OVERVIEW OF ISSUES AND STUDY DESIGN

This evaluation considers EPA's overall strategy for working with state agencies and local school districts to reduce potential health risks in public schools from exposure to asbestos-containing materials, lead in drinking water and radon. The strategies for these three programs generally have been to define, to some level, the required or recommended testing and remediation steps, and then to turn over the final program implementation to the states. EPA has supported the states and individual school districts, to varying degrees, with information, workshops, training, and technical assistance.

Initially, this research was to be focused upon evaluating EPA's risk communication/risk management materials and their impact upon local school districts. For example, for each of the three study programs, EPA has developed manuals and other materials to communicate risk, define applicable regulations and schedules, and provide risk management information covering testing and remediation procedures. The following questions about the EPA materials are of interest:

1. Is the message clear, informative and complete?

2. Does it enhance knowledge about the regulations/guidelines, provide needed information to take action, and alter risk perceptions to be more consistent with existing knowledge? Does the EPA material lead to the required or recommended actions?

3. How, if at all, should the message be altered to be more useful to local school districts?

However, early analysis indicated that one key difference across the programs was the dissemination of EPA information. As discussed in Chapters 4 through 6, materials dissemination varied considerably across the programs, ranging from notices in the Federal Register and mailings to each school district in the U.S. under the asbestos program, to fliers and limited distribution of materials to state agencies under the lead and radon programs. Because the EPA materials can be useful only if they are received, the following questions become important:

4. Are local school districts aware of information through EPA and elsewhere, and why or why not? What would have been done without the EPA materials?

5. Do the different distribution methods matter?

6. What percent of local school districts actually receive the materials, and from where?

The EPA materials and distribution methods are best considered within the context of the overall EPA risk communication/risk management strategy employed for each program. Following Congressional mandates, the EPA programs have ranged from having very specific regulations, approaches and schedules under the asbestos program, to having only interim recommendations (or guidelines) with options as to the recommended approaches and few schedule deadlines for lead in drinking water and radon. The EPA strategy has also relied heavily upon state implementation of the programs and, therefore, EPA's interactions with the states is important. Also important are EPA's other support efforts, such as working with the media, working with state agencies, funding, training, etc. Therefore, this evaluation also considers the impact of the overall program strategies on the program effectiveness, including:

7. How important are regulations versus recommendations, and interim versus final guidance?

8. How do states work with, respond to, and, as a result, affect the EPA program effectiveness? How important are variations in the state environment (political climate, funding, agency efforts, etc.)? And how effective has EPA been in working with state agencies?

9. What aspects of EPA's other efforts, such as press releases and funding assistance, help or hinder the risk communication/risk management programs and why?

To address the above issues, two complementary data collection efforts were undertaken in nine case study states.

- Semi-structured interviews were conducted with regional EPA and state agency personnel to define regional EPA and state agency actions and attitudes and circumstances.

- A mail survey was completed with a random sample of local school districts concerning program materials, testing and remediation actions, attitudes and risk perceptions, and other baseline information.

The design and focus of these data collection efforts are discussed more fully in the subsequent sections of this chapter.

2.2 SELECTION OF STATES

To evaluate the EPA programs, a sample of states was selected to obtain, consistent with project resources, a cross-section of several characteristics. The research team attempted to attain:

- geographic diversity sufficient to enable differentiation in geopolitical and cultural climates;
- differences in population size;
- differences in levels of urbanization;
- differences in known or estimated levels of risk from lead in drinking water and radon, which might motivate differing response levels; and
- differentiation in perceived initial responses to the federal mandates and/or recommendations for these programs, thereby enabling the research team to examine the factors that might account for these differences.

The differences in the selected states gives a sense of the variation in state responses to EPA programs and provides insights into what motivates and hinders state and local school district response to the EPA programs.

State selections were finalized after discussions with representatives from EPA's Lead in Drinking Water and Radon programs and telephone interviews with:

- representatives of appropriate departments in several states;
- the Executive Director of the National Association of School Boards;
- representatives of several state school board associations; and
- EPA regional staff.

The Asbestos program became part of the study very late in the process and, therefore, had no direct input into state selection. The addition of the Asbestos program to the study also resulted in a decision to conduct two separate surveys of local districts, using two different instruments and two different samples. One of these surveys concentrated on the Lead in Drinking Water and Radon programs; the other concentrated on Asbestos. There were two reason for this decision. The first was simply a concern about including too much content in a survey instrument by attempting to address all three programs in one instrument. This would require too much information and effort; additionally, in some cases, different individuals are in charge of different programs, which would require more "passing around" of the instrument and lower response rates. The second reason was an assumption on the part of the research team that the asbestos experience has had a heavy impact on many school districts and this might unduly influence responses to the other two programs.

Nine states were included for the Lead in Drinking Water/Radon portion of the study. Two of these states did not have a sufficient number of school districts to enable drawing two separate samples and were, therefore, not included in the Asbestos portion of the study. Table 2-1 describes the number of school districts in the selected states and which programs were evaluated in each of these states.

Table 2-1
The States Selected for the Study

State	Total Number of Public School Districts	Programs Evaluated	
		Asbestos	LDW/Radon
Colorado	176	X	X
Idaho	115		X
Illinois	987	X	X
New York	765	X	X
Ohio	614	X	X
Pennsylvania	201	X	X
So. Carolina	91		X
Tennessee	120	X	X
Texas	1146	X	X

2.3 LEARNING ABOUT THE STATE ENVIRONMENTS

The research team hypothesized that the ways in which school districts respond to communication about potential environmental health risks, such as those included in this study, are related, at least in part, to certain state characteristics and particularly to the level of activity the state generates relative to these health risks. To examine the validity of this hypothesis, it was necessary to gather information about each state and the ways in which the states were responding to the federal requirements or recommendations. This required two additional data collection efforts beside the mailed survey of local school districts. One of these efforts was at the level of the EPA regions. The second was at the level of appropriate state governmental agencies as well as state school board associations, some of whom take an active role in assisting school districts to address environmental concerns.

The study team gathered data on state environments through semi-structured, open-ended telephone interviews. This type of interview assures that certain information will be gathered consistently but also enables the interviewer to probe and pursue salient issues whenever appropriate. The results of these efforts on the state programs for asbestos-containing materials, lead in drinking water and radon are summarized in Sections 4.2, 5.2, and 6.2.

As earlier indicated some of the interviews with regional EPA staff, representatives of state agencies and state school board associations occurred prior to state selection. This was particularly true for the Lead in Drinking Water program, which was the initial program slated for study.

2.3.1 EPA Regional Staff

The first interviews were conducted with appropriate staff members in several EPA regional offices. These interviews were designed to attain information about:

- particular states in the region;
- the role that the regional office was taking with respect to each program;
- the relationships between the regional offices and the various state agencies;
- issues perceived at the regional level; and
- appropriate contacts within the states.

2.3.2 State School Board Associations

Interviews with representatives from state school board associations were conducted to attain information about:

- any role that the association had taken or might take with respect to each program;
- perceptions of salient issues within their state; and
- assistance that the association might provide the study team through advance notification about the survey to the selected school districts.

2.3.3 State Agencies

Two sets of interviews were conducted with representatives from the relevant state agencies. The first set occurred prior to the survey of local school districts. The second interviews were conducted several months later, after the survey had been completed but before the survey data analysis was completed.

These first interviews were designed to attain information about:

- state responses to the federal programs;
- current and/or planned state actions with respect to the federal programs;
- attitudes at the state level about the federal programs;
- general attitudes at the state level about EPA;
- perceptions of the levels of pubic concern about the environmental risks being addressed;
- perceived issues in the state; and
- perceived attitudes, responses and issues in the local school districts.

The second interviews were designed primarily to ascertain what changes had occurred within each state since the initial conversations and to clarify initial local school district survey results.

2.4 THE SURVEYS OF LOCAL SCHOOL DISTRICTS

2.4.1 The Samples

The local school districts were selected using a standard random, probability sampling procedure in which each public school district in the state had an equal chance of being selected. The samples were drawn by Quality Education Data (QED), an educational research firm in Denver, Colorado. The sampling procedure used was meant to assure a cross-section of districts according to the following demographic variables:

- size, including number of students and number of schools;
- urbanicity (i.e., urban, suburban, rural);
- level of affluence; and
- percentage of minorities.

2.4.2 Designing the Survey Instrument

Mailed questionnaires were used in the survey of local school districts. As we indicated earlier, two separate questionnaires were designed for the survey, one for the school districts in the lead in drinking water/radon sample and the other for the districts constituting the asbestos sample. Several questions were common to both instruments. The questionnaires, which are found in the Appendix of this report, were essentially structured, forced-choice instruments that included some open-ended questions. Instrument design was implemented with significant input from EPA's Office of Policy, Planning and Evaluation and from each of the three program offices.

The instruments were designed to:

- assess the degree of seriousness with which the districts view a variety of environmental and health issues;
- assess levels of familiarity with both federal and state mandates and recommendations for the three programs being studied;
- learn what kinds of actions districts have taken or are planning to take relative to the three programs being studied;
- enable respondents to evaluate the various EPA materials that have been published for the three programs;
- assess to what degree these materials have influenced district actions;
- assess the degree of difficulty that districts have had or are having in complying with mandates and recommendations;

- determine to which sources school districts are more likely to turn for information on environmental concerns;
- assess the average or typical amount of money that districts have spent and are spending on the asbestos program on inspections, management plans, remediation and ongoing surveillance; and
- assess general attitudes about environmental issues and the EPA.

2.4.3 Basic Outline of the Asbestos Questionnaire

The first three questions concerns the respondent's position in the district, the length of time the respondent has been with the district and in that position, and who in the district is primarily responsible for supervising actions that relate to environmental issues.

The second set of questions address the combined level of concern expressed by parents, students, faculty and staff about several health and environmental issues and the respondent's assessment of the relative health risk of each of those issues.

The next section of the questionnaire, entitled "About Asbestos in Schools" addresses the respondent's degree of familiarity with state and federal regulations and guidelines pertaining to asbestos in schools; asks which of several possible sources of information the district has used in determining its actions on asbestos-containing materials (ACM) management and abatement; addresses, in some detail, the district's overall Management Plan and abatement activities; asks about funding sources and expenditures, to date and projected; requests the respondent to evaluate EPA materials on the Asbestos program, addresses which of several factors were helpful and motivating and which were impediments to district action.

The following section, "Also About the EPA Programs", assesses the degree of difficulty the district has encountered in implementing several environmental programs and gathers general attitudinal information about the EPA.

A section, "About Your District's Facilities" addresses the ages of the district's buildings and the instrument concludes with room for comments and information requests.

2.4.4 Basic Outline of the Lead in Drinking Water/Radon Questionnaire

The first and second sets of questions are identical to their counterparts in the Asbestos questionnaire, addressing the respondent's position; length of service; who in the district supervises environmentally related actions; levels of concern expressed about each of several

potential health and environmental issues; and the respondent's assessment of these issues as serious health risks.

The following section, "About Lead in Drinking Water", addresses: ownership of water supplies; any regular testing of drinking water for contaminants; familiarity with state and federal regulations and/or guidelines; which of several information sources the district has used to help determine actions relating to lead in drinking water; any testing and remediation activities (either accomplished or planned); the respondent's assessment of EPA guidance materials on lead in drinking water; and familiarity with the EPA's list of water coolers that require either repair or replacement. The next questions concern factors that might have been either motivating and helpful or impediments to district action.

The segment, "About Radon Gas in Your Schools," follows essentially the same outline as the corresponding questions about lead in drinking water.

Questions in the section, "Also about the EPA Programs," ask the respondent to assess the degree of difficulty the district has had in implementing several environmental programs and asks for general attitudinal data about the EPA. "About Your District's Facilities" follows and addresses the age of the district's buildings. The instrument concludes with comments and information requests.

2.4.5 The Survey Process

The Lead in Drinking Water/Radon instrument was field tested in school districts in Colorado and North Carolina. The Asbestos instrument was field tested only in Colorado. A total of nine field tests were conducted for the two instruments.

The survey mailing process followed a modified Dillman (1978) approach. The superintendent of each school district in the sample received advance notification of the survey from their state school board association. Notification was in the form of a letter, except in New York and Pennsylvania, where notification took the form of an article in a regularly mailed newsletter. These advance notifications were mailed the first week of November, 1989.

Questionnaires were hand addressed and mailed to the Superintendent (by name) of each district in the sample during the second week in November. A cover letter requested that the Superintendent either complete the questionnaire or send it to the most appropriate staff member in the district for completion.

Activities to increase the response rate included:

- a reminding postcard, sent approximately ten days after the surveys were mailed;
- a second letter, mailed, approximately four weeks after the first survey mailing to everyone in the sample who had not yet responded, and containing a second copy of the questionnaire; and
- a follow-up telephone call, made in January, 1990, to 200 districts that had not responded by that time (or about 1/3 of those not yet responding), to ask if these districts would still return the questionnaire, gather some key data, and to send additional copies of the questionnaire to those who did not recall receiving one.

Copies of the survey instruments and cover letters can be found in Appendix A.

3.0 MAIL QUESTIONNAIRE RESPONSE RATES AND GENERAL RESULTS ACROSS ALL PROGRAMS

3.1 RESPONSES TO THE MAIL QUESTIONNAIRES

This section describes response rates, characteristics of the responding districts, and who completed the mail questionnaires for the districts.

3.1.1 Response Rates

Table 3-1 summarizes information about sample sizes and response rates for each version of the mail questionnaire. Response rates to the two versions were fairly similar, averaging 62 percent across all the states. Given the original sampling plan, these response rates resulted in having completed responses for an average of about 10 percent of all school districts in the states selected for the analysis. This percentage varied significantly across the states primarily due to the large variation in the number of school districts in each state. Some variation in state average response rates is apparent, with lower response from districts in Illinois and New York and higher response rates from districts in Colorado, for both versions of the questionnaire.

In addition to the mail returns, 126 telephone interviews were completed. The combined response rate for both mail and telephone was therefore 72 percent (Table 3-2).

3.1.2 Characteristics of the Sampled Districts

Averages of selected characteristics for the school districts sampled and responding to the mail questionnaire are shown in Tables 3-3 through 3-6. The selected characteristics are:

The percentage of students under poverty, the Orshansky percentile, which indicates the percentage of students coming from families living under the poverty line

Instructional materials dollars per student (IDP)

Number of students in a district

Number of schools in a district

Percentage of Black students in a district

Percentage of Hispanic students in a district

Table 3-1
Sampling Plan and Survey Response Rates

	TOTAL NUMBER OF SCHOOL DISTRICTS IN EACH STATE	NET SAMPLE*	SAMPLE % OF TOTAL	NUMBER OF GOOD RETURNS**	RETURN AS % OF SAMPLE	RETURN AS % OF TOTAL
LEAD/RADON RESULTS						
Colorado	176	56	31.82%	41	73.21%	23.30%
Idaho	115	59	51.30%	41	69.49%	35.65%
Illinois	987	100	10.13%	57	57.00%	5.78%
New York	765	90	11.76%	53	58.89%	6.93%
Ohio	614	89	14.50%	47	52.81%	7.65%
Pennsylvania	201	85	42.29%	51	60.00%	25.37%
South Carolina	91	58	63.74%	36	62.07%	39.56%
Tennessee	120	59	49.17%	32	54.24%	26.67%
Texas	1146	115	10.03%	76	66.09%	6.63%
Unspecified				7		
SUBTOTAL	4215	711	16.87%	441	62.03%	10.46%
ASBESTOS RESULTS						
Colorado	176	57	32.39%	44	77.19%	25.00%
Illinois	987	101	10.23%	59	58.42%	5.98%
New York	765	88	11.50%	51	57.95%	6.67%
Ohio	614	90	14.66%	58	64.44%	9.45%
Pennsylvania	201	90	44.78%	49	54.44%	24.38%
Tennessee	120	60	50.00%	37	61.67%	30.83%
Texas	1146	116	10.12%	74	63.79%	6.46%
Unspecified				2		
SUBTOTAL	4009	602	15.02%	374	62.13%	9.33%
COMBINED RESULTS	8224	1313	15.97%	815	62.07%	9.91%

* Twenty of the original addresses were deleted as incorrect or inappropriate.

** Four returned lead/radon surveys were later deleted due to missing pages and one was deleted due to a duplicate response from the same district, leaving a working sample of 436.

Table 3-2
Total Response Rate

Category		Survey Version		
		Lead/Radon	Asbestos	Total
1.	Net Sample	711	602	1313
2.	Mail Returns	441	374	815
	% of Net Sample	62.03%	62.13%	62.07%
3.	Additional Telephone Respondents	63	63	126
	% of Net Sample	8.06%	10.47%	9.60%
4.	Total Mail and Telephone Participants	504	437	941
	% of Net Sample	70.9%	72.6%	71.7%

Table 3-3
Average Demographic Characteristics of School Districts Sampled for the Asbestos Survey

Variable	Statistic	All	State						
			Colorado	Illinois	New York	Ohio	Penn	Tenn	Texas
Sample Size		602	57	101	88	90	90	60	116
Percentage of Students under Poverty	mean	13.5%	17.1%	8.4%	10.6%	9.2%	10.2%	22.0%	19.0%
	SE(mean)	*0.4*	*1.5*	*0.6*	*0.8*	*0.7*	*0.6*	*0.9*	*1.2*
Instructional Materials Dollars per Student	mean	$72	$76	$76	$117	$59	$71	$43	$58
	SE(mean)	*1.4*	*3.8*	*3.2*	*3.4*	*2.2*	*2.9*	*1.8*	*2.7*
Number of Students	mean	2708	1596	1476	2391	3245	2951	4670	2984
	SE(mean)	*219*	*500*	*241*	*345*	*860*	*233*	*889*	*650*
Number of Schools	mean	5.2	4.7	3.3	3.9	4.6	5.9	10.2	5.4
	SE(mean)	*0.3*	*0.8*	*0.3*	*0.4*	*0.4*	*0.4*	*1.8*	*0.9*
Percentage of Black Students	mean	5.2%	0.1%	3.3%	4.0%	2.5%	3.0%	12.4%	9.8%
	SE(mean)	*0.5*	*0.05*	*1.2*	*0.8*	*0.7*	*0.9*	*1.9*	*1.1*
Percentage of Hispanic Students	mean	6.8%	15.8%	2.2%	2.7%	1.4%	0.6%	0.8%	20.3%
	SE(mean)	*0.6*	*2.5*	*0.4*	*0.6*	*0.2*	*0.1*	*0.07*	*2.3*

Table 3-4
Average Demographic Characteristics of School Districts that Responded to the Asbestos Survey

Variable	Statistic	All	State						
			Colorado	Illinois	New York	Ohio	Penn	Tenn	Texas
Sample Size		374	44	59	51	58	49	37	74
Percentage of Students under Poverty	mean	13.4%	15.9%	8.1%	10.7%	9.6%	9.5%	21.3%	18.9%
	SE(mean)	*0.5*	*1.5*	*0.6*	*1.0*	*0.9*	*0.7*	*1.2*	*1.4*
Instructional Materials Dollars per Student	mean	$71	$74	$75	$121	$58	$73	$42	$57
	SE(mean)	*1.8*	*2.7*	*4.2*	*4.5*	*2.9*	*4.2*	*1.8*	*3.3*
Number of Students	mean	2628	2007	1686	2676	2375	3127	4036	2875
	SE(mean)	*183*	*660*	*379*	*456*	*306*	*353*	*389*	*576*
Number of Schools	mean	5.2	5.5	3.5	4.1	5.0	6.0	8.9	5.1
	SE(mean)	*.3*	*1.1*	*0.5*	*0.5*	*0.5*	*0.6*	*0.9*	*0.8*
Percentage of Black Students	mean	4.7%	0.1%	1.7%	4.5%	2.3%	2.4%	13.4%	8.8%
	SE(mean)	*0.5*	*0.1*	*0.7*	*1.1*	*0.8*	*0.7*	*2.6*	*1.2*
Percentage of Hispanic Students	mean	7.7%	15.7%	2.4%	3.3%	1.3%	0.8%	0.9%	22.0%
	SE(mean)	*5.9*	*2.6*	*0.7*	*0.9*	*0.3*	*0.2*	*0.1*	*3.0*

Table 3-5
Average Demographic Characteristics of School Districts Sampled for the Lead/Radon Survey

Variable	Statistic	All	State								
			Colorado	Idaho	Illinois	New York	Ohio	Penn	S.Carolina	Tenn	Texas
Sample Size		711	56	59	100	90	89	85	58	59	115
Percentage of Students under Poverty	mean	14.2%	15.2%	16.4%	9.2%	10.6%	9.6%	9.3%	24.0%	18.2%	17.9%
	SE(mean)	*0.4*	*1.4*	*1.2*	*0.8*	*0.8*	*0.7*	*0.7*	*1.6*	*1.0*	*1.1*
Instructional Materials Dollars per Student	mean	$67	$87	$54	$72	$112	$61	$69	$41	$39	$57
	SE(mean)	*1.3*	*4.6*	*2.5*	*2.8*	*3.6*	*2.4*	*3.0*	*0.9*	*0.9*	*2.4*
Number of Students	mean	3661	4264	1700	1374	2451	3700	4666	6429	7830	2787
	SE(mean)	*422*	*1657*	*313*	*207*	*430*	*1078*	*2106*	*1027*	*2514*	*696*
Number of Schools	mean	6.1	9.0	4.8	3.2	4.1	5.4	7.4	9.2	10.7	5.1
	SE(mean)	*0.6*	*2.9*	*0.5*	*0.4*	*0.7*	*1.2*	*2.9*	*1.4*	*2.7*	*1.0*
Percentage of Black Students	mean	7.7%	0.6%	0.1%	3.6%	5.3%	3.8%	2.3%	43.7%	8.6%	7.2%
	SE(mean)	*0.6*	*0.4*	*0.1*	*1.2*	*1.7*	*1.5*	*1.0*	*2.6*	*1.7*	*0.9*
Percentage of Hispanic Students	mean	6.3%	14.5%	4.6%	2.1%	2.6%	0.8%	1.0%	1.3%	0.8%	20.6%
	SE(mean)	*0.5*	*2.3*	*0.7*	*0.4*	*0.6*	*0.2*	*0.3*	*0.1*	*0.1*	*2.2*

Table 3-6
Average Demographic Characteristics of School Districts that Responded to the Lead/Radon Survey

Variable	Statistic	All	Colorado	Idaho	Illinois	New York	Ohio	Penn	S Carolina	Tenn	Texas
			State								
Sample Size		436	41	41	57	53	47	51	36	31	72
Percentage of Students under Poverty	mean	14.6%	15.1%	17.2%	9.8%	11.6%	10.1%	10.1%	24.9%	17.7%	17.6%
	SE(mean)	*0.5*	*1.7*	*1.7*	*1.2*	*1.0*	*0.8*	*1.0*	*1.8*	*1.3*	*1.4*
Instructional Materials Dollars per Student	mean	$68	$93	$49	$77	$112	$59	$67	$42	$40	$57
	SE(mean)	*1.6*	*5.1*	*1.6*	*3.7*	*4.8*	*3.4*	*3.6*	*1.1*	*1.3*	*3.1*
Number of Students	mean	3858	5676	2031	1411	2657	2037	6510	6109	8151	2993
	SE(mean)	*602*	*2313*	*433*	*194*	*647*	*233*	*3705*	*1432*	*3469*	*994*
Number of Schools	mean	7.2	11.8	5.3	3.6	4.8	4.2	10.4	10.5	13.0	5.6
	SE(mean)	*0.9*	*4.1*	*0.7*	*0.4*	*1.1*	*0.4*	*5.0*	*2.3*	*5.0*	*1.5*
Percentage of Black Students	mean	7.5%	0.9%	0.2%	4.9%	3.3%	1.8%	2.6%	41.3%	10.9%	8.5%
	SE(mean)	*0.8*	*0.6*	*0.1*	*2.0*	*1.0*	*0.7*	*1.6*	*3.1*	*2.9*	*1.3*
Percentage of Hispanic Students	mean	6.0%	12.9%	4.9%	2.1%	1.9%	1.0%	1.2%	1.2%	0.7%	18.7%
	SE(mean)	*0.7*	*2.4*	*0.9*	*0.5*	*0.6*	*0.1*	*0.5*	*0.1*	*0.1*	*2.8*

Overall, the school districts responding to both versions of the questionnaire had average characteristics similar to the full samples that received each version of the questionnaire. It appears, therefore, that there is not any significant response bias in terms of these characteristics. Some of the differences among the state averages of these characteristics are used in subsequent chapters to help explain differences in the responses to the EPA programs.

3.1.3 Who Answered the Questionnaires

Table 3-7 summarizes who completed the mail questionnaires. About 70 percent of the respondents were superintendents or assistant superintendents for both versions of the questionnaire. The average experience of the respondents was substantial, with an average of 11 years with the district and 7 years in the current position. It appears that the average respondent was in a position to be well aware of the problems and concerns of the district with respect to these environmental risk programs and other school district issues.

The respondents were also asked who in their district was responsible for supervising any action by the district concerning environmental issues (Table 3-7). About 60 percent said the superintendent or assistant superintendent. About 15 percent said the business manager or administrative assistant. Another 15 percent said maintenance manager or school engineer. Overall, the questionnaires were completed by individuals responsible for and familiar with the program evaluated in the questionnaire and who have several years experience in their districts.

3.2 TELEPHONE FOLLOW-UP

As discussed in Chapter 2, a telephone follow-up was conducted for two purposes: (1) to stimulate additional responses to the mail questionnaire, and (2) to obtain some information about non-respondents to the mail questionnaire.

3.2.1 Telephone Response Rates

Table 3-8 summarizes the response rates for the telephone follow-up. Approximately 230 contacts were made. About 80 percent of those contacted (182 respondents) indicated willingness to complete the mail questionnaire. Of these, 76 (about one-third of those contacted) did return a completed mail questionnaire. Telephone interviews were completed for 126 respondents who did not complete the mail survey. Combined with the mail responses, this means that information in one form or another was obtained from about 72 percent of the net sample.

Table 3-7
Who Completed the Survey
(Questions 1, 2, 3)

	% Completing Survey Version	
	Lead/Radon	Asbestos
I Title		
1 Superintendent/Asst. Superintendent	71.6%	70.8%
2 Business Manager, Fiscal Operations, Admin., Asst.	15.1%	15.3%
3 Manager of Maintenance, School Engineer, etc.	9.2%	9.2%
4 Env. Coordinator, Program Coordinator	2.1%	2.2%
5 Others	2.0%	2.5%

		Survey Version	
	Statistic	Lead/Radon	Asbestos
II. Experience of Respondent			
Avg. yrs. in district	mean	11.43	11.87
	SE(mean)	*.44*	*.51*
Avg yrs. in current position	mean	6.73	7.06
	SE(mean)	*.28*	*.32*

	Lead/Radon	Asbestos
III Who is Responsible		
1. Superintendent/Asst. Superintendent	58.2%	59.3%
2 Business manager, Fiscal operations, Admin , Asst	14.9%	16.3%
3 Manager of Maintenance, School Engineer, etc.	15.1%	18.5%
4 Env Coordinator, Program Coordinator	1.7%	3.1%
5 Others	10.1%	2.8%

Table 3-8
Summary of Telephone Follow-up Response Rates

	Category	Total Number	Lead/ Radon	Asbestos
1.	Non-respondents at time of telephone interview	606	NA	NA
2.	Number attempted	310	NA	NA
	Less: Unsuccessful contacts (never reached target respondent)	-80	NA	NA
	Refusals to participate	-15	NA	NA
	Wrong numbers	-2	NA	NA
3.	Equals total completed or partially completed	213		
4.	Number indicating no intent to return mail survey	31	NA	NA
5.	Number indicating interest in returning mail survey	182	91	91
6.	Number completing part or all of the remainder of telephone survey	202	101	101
7.	Number from line 5 actually returning mail survey, % returning	76 41.7%	38 41.7%	38 41.7%
8.	Number completing telephone survey who did not complete mail survey	126	63	63

3.2.2 Answers of Telephone Respondents

Four questions were asked of the telephone respondents that were comparable to questions in the mail questionnaire (a complete copy of the telephone questionnaire is included in the appendix). These questions were:

- Perceived health risks of the three environmental problems
- Relative ease or difficulty in complying with federal regulations or guidelines for each program
- Helpfulness of EPA materials and assistance
- Expenditures to date on asbestos program

The mean responses of the telephone respondents who did not complete the mail questionnaire are shown in Table 3-9. For comparison, the mean responses to the comparable mail question are also shown. The first question is comparable to Q-5 in both versions of the mail questionnaire. The second question is comparable to Q-33 in the asbestos version of the mail questionnaire and to Q-40 in the lead/radon version. The third question is comparable to Q-30 for asbestos, to Q-22 for lead in drinking water, and to Q-37 for radon. Overall, the responses to the telephone questions are one-half to one point lower on the same five point scales. Because some of the questions are positive and some are negative in terms of potential attitudes toward these programs, it appears more likely that the differences in the telephone response result from the different way in which the questions were asked rather than from dramatically different attitudes on the part of the telephone respondents. The only significant difference in responses regarding the three programs is the greater difficulty in complying with the asbestos programs, a response similar to that given by the mail respondents.

There appeared to be a few problem responses to the asbestos expenditures question in the telephone survey. Telephone respondents were unable to take time to check their figures and probably tended to do more estimating than those respondents who completed the mail questionnaire and had more opportunity to check the accuracy of their response. Therefore we are skeptical that the mean response, which was about three times the mean from the mail questionnaire, is accurate. This is particularly true since the median expenditures are reasonably comparable at $30,000 for the telephone respondents and $40,000 for the mail respondents.

The telephone respondents were also asked if they had any additional comments. About 40 percent of the respondents gave one or more comments. These are summarized and compared to comments from the mail respondents in Table 3-10. Many of the telephone respondent's comments were made by a similar percentage of the mail respondents. In general, the tone of the telephone comments was slightly more negative, with more

Table 3-9
Answers Given by Telephone Respondents

Question		Telephone Responses (n=126)	Mail Responses (n=810)
Perceived health risk:			
Asbestos-containing materials	mean	1.26	1.78
	SE(mean)	*.06*	*.03*
Lead in drinking water	mean	1.25	1.64
	SE(mean)	*.06*	*.03*
Radon Gas	mean	1.21	1.60
	SE(mean)	*.06*	*.03*
How difficult to comply:			
Asbestos containing materials	mean	3.70	4.04
	SE(mean)	*.14*	*.04*
Lead in drinking water	mean	1.93	2.72
	SE(mean)	*.11*	*.05*
Radon Gas	mean	1.86	2.89
	SE(mean)	*.15*	*.06*
Helpfulness of EPA materials and assistance:			
Asbestos containing materials	mean	2.53	2.93 (n=374)
	SE(mean)	*.13*	*.07*
Lead in drinking water	mean	2.38	3.08 (n=436)
	SE(mean)	*.12*	*.07*
Radon Gas	mean	2.15	2.75 (n=436)
	SE(mean)	*.13*	*.08*
Asbestos Costs to Date	Median	$30,000	$40,000

Table 3-10
Additional Comments by Telephone Respondents
About the EPA Programs

Percentage of Respondents		Specific Comment (Paraphrased)
Phone	Mail*	
74	843	Total number of comments given**
126	810	Total number of respondents for each version
I. EPA should provide more financial support		
13%	24%	EPA should provide financial support for these programs; they are taking funds away from education.
2%	7%	EPA should do/pay for the work required.
1%	4%	EPA should provide more on-site help, testing, or other direct assistance.
II. Complaints about the requirements and/or guidelines		
7%	1%	Asbestos drained/wasted funds.
6%	4%	Abolish EPA, etc.
3%	9%	EPA should provide better/simpler information and establish clearer guidelines.
3%	2%	Make less/easier regulations.
2%	3%	Don't keep changing requirements/guidelines.
2%	2%	EPA should coordinate guidelines with state and local agencies.
2%	1%	Need more muscle in the regulations.

Table 3-10 (cont.)
Additional Comments by Telephone Respondents
About the EPA Programs

III. EPA's programs/actions exaggerate the risks		
6%	3%	These programs are not needed; there is no real risk; EPA has overreacted.
3%	4%	EPA should provide information about the true health risks; problem not that serious.
2%	6%	EPA should take a more realistic/common sense approach.
IV. EPA should provide better or different information		
1%	3%	EPA should provide a newsletter or other periodic updates on programs and requirements.
1%	3%	EPA should provide more/better training.
1%	2%	EPA should provide more information about who is qualified to do the work and what it should cost.
V. EPA should improve communication with the schools and with the public		
2%	3%	EPA should conduct better public relations with the schools and listen to feedback from the schools.
1%	3%	EPA should be more responsive and supportive.
VI. EPA is doing a good job		
1%	1%	General positive comments about EPA.

* Asbestos Q35 and Q36 and Lead/Radon Q42 and Q43.

** About 40% of the telephone respondents and about 60% of the mail sample gave one or more comments in response to these questions.

complaints that the asbestos program had drained/wasted funds, that these programs are not really needed, and that EPA should be abolished (or some similarly negative statement about EPA).

Telephone respondents who said they would not return the mail questionnaire were asked to give some explanation. Most of them said that it was too long, they were too busy, or they simply got too many questionnaires. A few indicated hostility toward EPA as the reason they would not respond.

Overall, the responses to the telephone survey do not suggest any significant response bias for the mail questionnaire respondents. Non-respondents may be slightly more skeptical about the need for these programs and slightly more hostile toward EPA, but these differences were not dramatic.

3.3 GENERAL PERCEPTIONS OF THE RISKS

Two questions were included early in both versions of the mail questionnaire to obtain some general information about how the respondents viewed the relative significance of these environmental risks. The first question asked respondents to rate on a four-point scale the level of concern expressed in the past year by parents, students, faculty, and staff about eight health risks for students, including drugs and alcohol and tobacco as well as six environmental risks. The mean responses to this question combined for both survey versions are summarized in Table 3-11. Expressions of concern related to drugs, alcohol, and tobacco exceed those related to any of the environmental risks. Expressions of concern related to asbestos, radon and lead in drinking water fell close to the "a little" point on the scale and exceeded the ratings related to the other environmental risks that have received less attention through EPA programs directed at schools.

Asbestos is consistently rated as evoking the greatest amount of concern. Lead in drinking water is rated slightly above radon gas, except in a few states. Most notably, the ratings for radon were higher in Colorado and Pennsylvania where information about high levels of radon gas found in a significant percentage of homes has been highly publicized.

The second question on this topic asked respondents to indicate, on a five-point scale, their opinion of the relative health risk for each item listed (Table 3-12). Again, drugs, alcohol, and tobacco are rated well above all the environmental risks. Drug, alcohol, and tobacco are rated on average between three and four on the five-point scale. All of the environmental risks are rated between one and two on the scale, suggesting that in general these risks are not viewed as very significant. Across all the states, the order of the ratings for asbestos, lead in drinking water and radon as health risks is the same as the order of expressions of concern, but they are closer together on the scale. In several states radon is rated slightly higher than lead in drinking water.

Table 3-11
Reported Concern Expressed by Parents, Students, Faculty and Staff about Potential Health Risks

In the past year, what has been the combined level of concern expressed by parents, students, faculty and staff about each of the following? (1 = None, 2 = Little, 3 = Some, 4 = Great) (Lead/Radon Q4 and Asbestos Q4)

			State								
Issue	Statistic	All	Colorado	Idaho	Illinois	New York	Ohio	Penn	S.Carolina	Tenn	Texas
Sample size	n	810	85	41	116	104	105	100	36	68	146
Student use of drugs and alcohol *	mean	3.32									
	SE(mean)	*.03*									
Student use of tobacco*	mean	2.67									
	SE(mean)	*.03*									
Asbestos in school building	mean	2.24	2.00	2.20	2.24	2.60	2.24	2.47	2.47	2.37	1.90
	SE(mean)	*.03*	*.10*	*.13*	*.08*	*.09*	*.09*	*.10*	*.17*	*.11*	*.07*
Radon in school building	mean	1.70	1.77	1.71	1.57	1.73	1.62	2.21	1.68	1.78	1.42
	SE(mean)	*.03*	*.09*	*.12*	*.07*	*.07*	*.07*	*.09*	*.12*	*.09*	*.06*
Other indoor air pollution	mean	1.57	1.51	1.34	1.45	1.80	1.63	1.89	1.57	1.51	1.40
	SE(mean)	*.03*	*.08*	*.09*	*.07*	*.08*	*.07*	*.08*	*.12*	*.07*	*.06*
Outdoor air near schools	mean	1.35	1.23	1.32	1.23	1.43	1.50	1.38	1.47	1.41	1.30
	SE(mean)	*.02*	*.05*	*.09*	*.05*	*.07*	*.08*	*.07*	*.12*	*.07*	*.05*
Lead in drinking water	mean	1.81	1.69	1.59	1.57	2.05	1.74	2.08	2.08	1.82	1.81
	SE(mean)	*.03*	*.08*	*.11*	*.07*	*.08*	*.07*	*.09*	*.15*	*.08*	*.07*
Other drinking water concerns	mean	1.52	1.58	1.41	1.40	1.53	1.57	1.67	1.49	1.41	1.52
	SE(mean)	*.03*	*.09*	*.10*	*.07*	*.06*	*.07*	*.09*	*.13*	*.07*	*.07*

* State means for these issues do not vary greatly and are omitted to focus upon environmental issues.

Table 3-12
Relative Health Risk as Perceived by Respondent

"What do you think the relative health risk is for students and employees in your district's facilities for each of the following?" (1 = no risk to 5 = great risk) (Lead/Radon Q5 and Asbestos Q5)

Issue	Statistic	All	Colorado	Idaho	Illinois	New York	Ohio	Penn	S Carolina	Tenn	Texas
						State					
Sample size	n	810	85	41	116	104	105	100	36	68	146
Student use of drugs and alcohol *	mean	3.58									
	SE(mean)	*.04*									
Student use of tobacco *	mean	3.25									
	SE(mean)	*.04*									
Asbestos in school buildings	mean	1.78	1.67	1.78	1.81	1.76	2.06	1.89	1.89	1.87	1.47
	SE(mean)	*.03*	*.08*	*.14*	*.08*	*.08*	*.10*	*.09*	*.14*	*.10*	*.06*
Radon in school buildings	mean	1.60	1.54	1.82	1.64	1.53	1.87	1.72	1.48	1.80	1.29
	SE(mean)	*.03*	*.08*	*.13*	*.08*	*.07*	*.10*	*.09*	*.10*	*.11*	*.05*
Other indoor air pollution	mean	1.51	1.36	1.53	1.44	1.65	1.71	1.68	1.49	1.57	1.33
	SE(mean)	*.03*	*.06*	*.10*	*.07*	*.08*	*.09*	*.09*	*.10*	*.09*	*.05*
Outdoor air near schools	mean	1.43	1.28	1.34	1.44	1.48	1.61	1.48	1.46	1.49	1.31
	SE(mean)	*.03*	*.07*	*.11*	*.07*	*.09*	*.08*	*.08*	*.10*	*.10*	*.06*
Lead in drinking water	mean	1.64	1.47	1.68	1.57	1.72	1.80	1.67	1.94	1.86	1.45
	SE(mean)	*.03*	*.08*	*.12*	*.07*	*.08*	*.08*	*.09*	*.13*	*.11*	*.06*
Other drinking water concerns	mean	1.50	1.59	1.38	1.49	1.50	1.67	1.65	1.39	1.47	1.34
	SE(mean)	*.03*	*.11*	*.09*	*.08*	*.08*	*.08*	*.09*	*.09*	*.09*	*.06*

* State means for these issues do not vary greatly and are omitted to focus upon environmental issues

The ratings of perceived risks reported in Table 3-12 may be somewhat confounded by the fact that some school districts have already tested to determine the degree of problem with asbestos, lead in drinking water, and/or radon gas in the district's buildings. Some have found that no problems exist and others have completed corrective actions to reduce the problems. This suspicion is confirmed by the comments about this question offered by some respondents (Table 3-13), several of which indicated that these problems had been fixed. To check the effect of this on the perceived level of risk, the mean risk ratings are reported for each of the following comparisons:

1. The asbestos health risk score is compared for those districts that report no need to conduct any corrective action for asbestos or that have completed all planned corrective actions (16% of the asbestos sample) versus those districts that have corrective actions remaining to be done.

2. The lead health risk score is compared for those districts that report having tested for lead in drinking water and have found no problems (26% of the lead/radon sample) versus those districts that either have not yet tested, or have tested and found retesting or corrective actions to be required.

3. The radon health risk score is compared for those districts that report having tested for radon and have found no problems (11% of the lead/radon sample) versus those districts that have either not yet tested, or have tested and found retesting or corrective actions to be required.

The mean ratings were as follows:

	No problem group	Some problem, or no testing yet
Asbestos	1.5	1.8
Lead	1.4	1.8
Radon	1.4	1.6

This suggests that some of the differences in the relative perceived level of risk reported for these three risks may be due to differences in how far along the school districts are in their testing and abatement processes. For example, lead in drinking water may be rated lower than asbestos on average primarily because a significant share of districts have tested and have found no problems with lead in their drinking water. Radon may be ranked lower than lead in drinking water because very few districts had as yet tested for radon and may presume the problem to be relatively insignificant.

Table 3-13
Most Frequent Comments to Clarify Responses about Different Potential Risks*

Comment Frequencies By Survey Version		Specific Comment (Paraphrased)
Asbestos	Lead/Radon	
101	73	Total number of comments given.**
374	436	Total number of respondents for each version.
17	10	Asbestos problem is fixed, or will soon be.
17	9	Several environmental problems are fixed, or will soon be.
12	8	We have strict controls over smoking, alcohol, and drugs.
8	2	Have fixed lead in drinking water, or soon will.
7	6	Still have water quality problems (nitrates, sewers, etc.).
7	7	This is a small district with few problems.
6	3	Trying to fix these (environmental) problems is more of a problem.
5	4	EPA/state/press has created concern that did not exist.
1	5	No risk from radon in this area.

* Q6 in both survey versions.

** About 20 percent of the sample gave a comment in response to Question 6 in each version of the questionnaire.

4.0 ASBESTOS CONTAINING MATERIALS PROGRAM AND ANALYSIS

4.1 BACKGROUND ON EPA PROGRAM

Asbestos was, for decades, thought of as one of our major technological advances. Until 1976, because of its ability to retard flame, the use of asbestos was specifically required by model building codes in areas where protection against fire was essential. As a consequence, asbestos-containing materials were regularly used in constructing school buildings. According to a signed editorial in the Rocky Mountain News, asbestos has had no fewer than 3,000 uses and has been used in hundreds of products, ranging from vehicle brakes to building panels to water and sewer pipes to protective aprons and gloves (Fumento, 1989).

The medical profession had long been aware that exposure to asbestos, and the inhaling of asbestos particles, caused a fatal lung disease called asbestosis. In the 1960s, medical researchers concluded that exposure to asbestos particles is also carcinogenic. It was approximately twenty years before Congress responded to this information.

4.1.1 Asbestos Hazard Emergency Response Act (AHERA)

In 1982 the Asbestos in Schools Rule went into effect and required schools to:

- inspect for friable asbestos-containing materials (ACMs), i.e., ACM that is dry and can be crumbled in one's hand;
- analyze the samples; and
- make notifications of the results.

The rule did not address nonfriable ACM, which are intact and contained within walls, floor tiles, etc.

Four years later, in October 1986, the Asbestos Hazard Emergency Response Act (AHERA) became law, replacing the original Asbestos in Schools Rule. In October 1987, the EPA promulgated the regulations that provide a framework for addressing asbestos hazards in schools under AHERA.

AHERA, which is far more comprehensive than its predecessor, requires schools to:

- inspect for both friable and non-friable asbestos;
- develop asbestos management plans that address asbestos hazards in any school

buildings owned or leased by the district, including administrative offices and essential maintenance, storage and utility facilities; these inspections and plans were to have been completed by October 1988; and

- begin to implement management plans no later than July 9, 1989.

School districts failing to comply with these regulations are subject to fines.

Between the 1982 Asbestos in Schools Rule and the AHERA regulations, local school districts have been subject to requirements concerning asbestos for eight years. The changes in requirements that occurred with the promulgation of the new regulations under AHERA are an issue both for state agencies and school districts. The implications of this issue are addressed in later sections of this report.

4.1.2 The Model Accreditation Plan

The AHERA regulations define asbestos-containing materials as any materials containing at least one percent asbestos. The regulations require all personnel involved with managing asbestos (designers, inspectors, management planners, supervisors and workers) to receive EPA approved training and become accredited. In April 1987, EPA published a Model Accreditation Plan that specifies training, examination and other requirements for asbestos personnel. States are required to develop their own Accreditation Plans with standards a least equal to those specified in the EPA model. A variety of organizations and agencies, including both universities and asbestos contractors, are approved trainers.

Each local school district must designate an individual to oversee the district's asbestos-related activities. This person must also be trained. While outcomes of this individual's training are specified in the regulations, how and where he or she receives that training is left to the school district.

Review and acceptance of management plans is the responsibility of each state. EPA did not publish a model format for a management plan nor are there requirements for the management plan review process. To make the management plan review process more efficient, many states have published a standard management plan format and require their local school districts to use it.

4.1.3 Abatement

Schools have three basic alternatives for abating asbestos hazards: repair, containment or encapsulation, and removal. The most expensive alternative is removal. Yet it is interesting

to note that many school districts have selected this option even when EPA regional staff and state officials indicate that a less expensive option is acceptable. According to several individuals in both EPA regional offices and state offices, many school boards and administrators have developed an attitude that can essentially be described as "just get it out!"

4.1.4 EPA Materials

The regulations promulgated under AHERA are exceptionally complicated and have required ongoing explanations, clarifications and definitions. As a result, the EPA has published several sets of materials for school districts. "Asbestos-in-Schools: A Guide to New Federal Requirements for Local Education Agencies" was published in February 1988. This was followed very quickly by "100 Commonly Asked Questions about the New AHERA Asbestos-in-Schools Rule", published just three months later, in May 1988. The most recent pamphlet, "The ABCs of Asbestos" was published in June 1989. Each of these publications was disseminated directly to all public and private K-12 school districts in the country. In addition, EPA will soon distribute a new guidance publication entitled, "Managing Asbestos in Place: A Building Owner's Guide to Operations and Maintenance Programs for Asbestos Containing Materials."

4.1.5 Grant Programs

There are currently three different federal grant programs to give financial assistance to states and school districts with their asbestos programs:

- TSCA, the Toxic Substance Control Act, includes funds for assisting state agencies in performing random inspections of schools to determine the accuracy of a district's inspections and management plans; these are frequently cooperative grants between the state and the EPA regional office.

- ASHAA, the Asbestos School Hazard Abatement Act, is a loan and grant program to assist school districts with abatement; there are $43.4 million dollars in this program for fiscal year 1990. These funds are available to local school districts that qualify financially for the assistance.

- AIMPAP, the Asbestos Inspection Management Plan Assistance Program made grants to the states which then allocate the funds to local school districts.

4.1.6 Additional Comments

AHERA has been a very expensive program for schools and while few question the validity of protecting the nation's school children from potential carcinogens, questions have been raised in both the scientific literature (Harvard, 1990; Gough, 1989) and public media as to whether the EPA regulations go further than is necessary. Even while schools are in the midst of implementing their asbestos management plans, the issue remains highly controversial. For example, in the Rocky Mountain News, Fumento (1989) points out that building occupants are rarely at the same risk as individuals actually working with asbestos-containing materials -- the individuals on whom the bulk of the medical research has been conducted. Critics also question the need for concern about non-friable asbestos that is embedded in walls or floor tiles, and suggest the threat of low-level asbestos exposure has been exaggerated (Fumento, 1989). EPA responded in February 1990 to a critical article in Science, January 19, 1990, agreeing that health risks due to low level asbestos exposures are probably low, but stating, "Scientists have been unable to agree on a level of asbestos at which we, as public policy makers, can confidently say, there is no risk" (McNally, 1990). EPA also pointed out that their publications clearly state that in-place management of asbestos containing material is, in many cases, the best abatement option.

4.2 STATE PROGRAMS

As indicated in Section 4.1, each state is required to establish an Accreditation Plan for the training and certification of personnel who do asbestos-related work in schools. The requirement states that the plan must be at least as rigorous as EPA's Model Accreditation Plan, leaving room for significant variation among state programs. In addition, AHERA specifies that states may develop procedures for reviewing and accepting management plans, and leaves the details of this process to the states. Consequently, even greater variation can be found among the states with respect to the process for reviewing management plans.

The regulations governing asbestos inspections, plans and abatement are, by far, the most complex and the most costly of any of the regulations or recommendations included in this study. Comments from study participants indicate that states' and local school districts' reactions to the Lead in Drinking Water and the Radon programs are certainly affected by their experiences with asbestos.

State-level activities are summarized in Table 4-1 and discussed below.

Table 4-1
Summary of State Asbestos Programs
(March 1990)

STATE	ACCREDITATION PROGRAM	REGULATIONS	MGT. PLAN REVIEW	STANDARD MGT. PLAN FORMAT	COMPLIANCE INSPEC-TIONS	TRAINING	OTHER CONSULTING/ ASSISTANCE
COLORADO	YES	= EPA	PARTIAL	X	X		
ILLINOIS	YES	> EPA	FULL	X	X	X	X
NEW YORK	YES	> EPA	AHERA 'FIVE' FORMS ONLY		X	X	X
OHIO	IN REVISION	= EPA	PARTIAL		IN PLANNING		
PENN	NO	NA	PARTIAL		EPA REGION		
TENN	IN PROCESS	> EPA	FULL	X	X	X	X
TEXAS	YES	> EPA	FULL	X	W/EPA	X	

4.2.1 Colorado

The Asbestos Coordinator in Colorado works under the Department of Health. The state has complied with the federal requirements but has been somewhat inactive with respect to this program. One respondent indicated that there was never a major expression of public concern about asbestos in Colorado. He commented that the issue never had the "right movers and shakers" behind it.

Colorado's Model Accreditation program is virtually identical to EPA's. The only exceptions are that the state requires a fee from school districts for the initial review of management plans, and the state published a standard format for writing management plans. The latter was done after it was found that cursory reviews of variously organized plans were taking from five to seven hours each. However, because the state's standard format was developed after the management planning process had begun, many districts have not used it. A key informant believes that EPA's regulations would have been much more useful if they had included a standard format for a management plan and required all districts to use it.

The state used Toxic Substance Control Act (TSCA) grants to provide free EPA-approved training courses for inspectors, management planners, district designees, etc. The training was offered by a variety of approved contractors including Colorado State University.

One respondent discussed the training courses, expressing some concern that a three day course may not have been sufficient for preparing the trainees to implement regulations as complex as those promulgated under AHERA. Colorado returned a number of management plans that contained flawed sampling or other problems. As inspectors, planners, etc., have gained more experience, plans have improved.

Funding constraints prevented the department from reviewing all plans. Originally, they reviewed plans from larger districts first and then reviewed plans from smaller districts that were developed by the same consultants - relying on similarities in one consultant's approach to facilitate the review of the smaller districts' plans. Insufficient funds caused the department to stop reviewing plans in October 1989. In the last stages of the review process, plans were reviewed against a check sheet and the department sent a letter identifying required changes with no additional follow-up.

The department is conducting random compliance inspections with TSCA grant funds. They anticipate completing inspections in approximately 80 school districts in 1990. This constitutes 45 percent of the state's districts.

4.2.2 Illinois

The Asbestos Coordinator in Illinois is in the Department of Public Health. The state has been very active with respect to this program. The Illinois legislature had passed a bill governing asbestos abatement in schools two years prior to AHERA. According to one informant, this legislation was the result of an expression of public concern that began with one parent. This same informant described Illinois as "always being in the lead on these types of issues" (a perception borne out in this study) and further explained that the state legislature is very responsive to public concerns.

Illinois' Accreditation Program is much more rigorous than EPA's. Before developing their regulations, state officials contacted their counterparts in states that had asbestos regulations in place. They developed Illinois's regulations using the experiences of other states.

In Illinois, each category of asbestos personnel must demonstrate specific prior experience and meet particular educational requirements to become accredited for work in schools. State licenses are required for abatement contractors and a project designer must be a licensed architect, engineer or industrial hygienist.

The state, in cooperation with EPA Regional staff, conducted nine seminars on AHERA throughout the state to enhance school districts' understanding of the regulations. The Department of Health published a standard format for management plans and is reviewing all plans. The state's requirements regarding management plans are also more rigorous than AHERA's. For example, the state requires each plan to include photographs of all sampled areas.

The department is currently inspecting a random sample of abatement projects in districts whose plans have been filed and reviewed. These inspections are revealing that the stringent regulations relating to personnel experience and education and the training that the state and EPA region cooperatively conducted are, in one respondent's words, "paying off" in terms of few problems or violations being found.

4.2.3 New York

The Asbestos coordinator in New York is in the Department of Labor, working in close cooperation with the Departments of Health and Education. The state has been very active with respect to this program. New York initiated its own program on School Asbestos Safety in 1979. Under this plan, the state had certified certain categories of asbestos personnel that were not specified under AHERA.

The state's law has recently been amended to conform with AHERA; New York's Accreditation Program is now virtually identical to EPA's except that the state demands state certification for certain categories of asbestos personnel and an accredited AHERA inspector must also be a state certified asbestos worker. In addition, New York's definition of asbestos-containing materials (ACM) is anything with a trace of asbestos while AHERA does not define materials as ACM until they contain at least one percent asbestos.

The Department of Education has actively assisted districts by providing additional training materials and workshops. They implement a "Management Plan Quality Assurance Program" that has included:

- quality assurance seminars;
- on-site reviews of management plans in a number of districts;
- awareness sessions for school maintenance personnel; and
- training sessions for district designees.

This program was intended to help districts submit plans that would be accepted on first review. Because of this intensive program, districts were required to submit only the management plan summary sheet, which is called an "AHERA Five Form," for state review. When EPA regional staff conducts an on-site compliance inspection, they review the complete plan.

Inspections are revealing that schools are frequently removing the asbestos when some other, less costly, method of abatement would have sufficed. One informant believes that EPA should place more emphasis on the fact that removal is often unnecessary.

4.2.4 Ohio

The Asbestos coordinator in Ohio works under the Department of Environmental Health. Due to a lack of resources, the state has been somewhat inactive with respect to this program.

The state's Model Accreditation Program is virtually identical to EPA's except that, in the state's program, asbestos workers must be state certified. The first version of Ohio's program did not meet EPA's minimal standard and EPA required them to "close some loopholes." During the development of the state program, the Environmental Health Department proposed a pre-requisite of a high school education for some categories of asbestos personnel. However, the legislature refused to accept this, primarily because Ohio is an economically depressed state and legislators were unwilling to limit the employment opportunities that would result from the program.

The department was originally reviewing all building plans but is no longer able to do this because of funding constraints. As of March 1990, they were reviewing only a sample of management plans from each district and were not reviewing any plans for noneducational buildings. The state had spent three-quarters of a million dollars to review plans at that point in time and had almost completed their review process. Some plans were reviewed and returned to the districts as many as three times.

At the time of the last interview, the department had not conducted any compliance inspections but was planning to inspect buildings in districts that have received Asbestos Inspection Management Plan Assistance Program (AIMPAP) grants. They were also tentatively planning to send reminders about abatement through the Department of Education and to convene regional meetings with approximately six school districts at a time to remind them of their abatement commitments.

4.2.5 Pennsylvania

It is unclear which agency coordinates the Asbestos program in Pennsylvania. As of March, there were competing bills in the state legislature, one which would place the program under the Department of Environmental Resources and one that would place it under the Department of Labor and Industry. This is evidently a politically sensitive issue in Pennsylvania and one informant speculated that the issue would not be settled until after a primary election, which was scheduled for May 1990. As a result, the state has been somewhat inactive with respect to this program.

There is no Accreditation Program in place. EPA approved training for management planners, etc. has been provided by Temple University, other colleges and contractors. The governor only recently appointed the Department of Education to review Management Plans. Originally, reviews were to be performed by the Department of Environmental Resources.

Compliance inspections are done by the EPA regional staff and only 24 schools in the entire region are scheduled for inspection in 1990.

4.2.6 Tennessee

The Asbestos coordinator in Tennessee is in the Department of Finance and Administration. The state has been somewhat active with respect to this program.

As of March 1990, the Department of Finance and Administration was helping to develop legislation to establish an Accreditation Program. The program will closely resemble EPA's but will expand approved training curricula to include state-specific information.

The department developed a standard format for management plans and implements three levels of plan review.

- Level A review for completeness is implemented for all plans.
- Level B review is implemented primarily in districts that have received AIMPAP grants. These are in-depth reviews of the plans of at least five elementary schools, one middle school and one high school.
- Level C review is implemented in districts that have received Asbestos School Hazard Abatement Act (ASHAA) grants. These are on-site audits in which inadequate or incorrect sampling is corrected immediately.

The department developed a consulting contract for asbestos management planners, inspectors, designers, etc. The state was divided into four regions and a "bulk" contracting procedure was established, enabling local school districts to contract with consultants at lower rates. School districts who wished to do so could contract with consultants independently. Included in the regional consulting contract were two hours of training for district personnel. Districts could avail themselves of a contract extension that provided for an additional 14 hours of training.

The department has held three regional meetings on writing ASHA grant applications and school districts in the state have received $3.3 million dollars in ASHA grants. In addition to ASHA funds, which go directly to the districts, the state has been able to fund a large number of school districts through AIMPAP grant funds because of the "bulk" contract that reduced consulting fees. It is apparent that with the coordination of the program under the state's Finance Department, one successful emphasis was on driving down the costs to the local school districts.

4.2.7 Texas

The coordinating agency for the Asbestos program in Texas is the Division of Occupational Safety and Health, Department of Health. The state has been very active with respect to this program.

The state's Accreditation Program is almost identical to EPA's with the following exceptions:

- The state charges school districts a fee for initial review of management plans.

- Asbestos contractors must be licensed by the state.
- Workers who disturb asbestos must be registered with the state.
- A high school education is recommended for asbestos personnel. As in EPA's program, this is not required.

The situation in Texas is unique. The state School Board Association staff took the appropriate EPA approved courses and became accredited management planners, subsequently working directly with many school districts on their plans. The Association also provided funds to the University of Texas and Texas A & M University to conduct awareness seminars and training for inspectors. State officials believe that the Association's role made the Asbestos program far easier for local school districts than it might otherwise have been.

Management Plans were initially reviewed by engineering graduate students at the University of Texas and Texas A & M University. The students apparently had some difficulty communicating to the districts what they were looking for in a Management Plan. The result was that many plans were reviewed numerous times. When the contracts with the universities expired, the review process was transferred to the Division of Occupational Safety and Health. All plans are reviewed in full.

Compliance inspections are being conducted in a random sample of school districts. The state has a cooperative TSCA grant to conduct these inspections with EPA regional staff. Many rural school districts in Texas use a cinderblock construction that requires no insulation. As a result, many school buildings have very little ACM.

4.3 RESPONSE FROM THE SCHOOL DISTRICTS

Three hundred seventy-four school districts in seven states responded to the Asbestos portion of this survey. Seventy-one percent of the respondents are either school superintendents or assistant superintendents (Table 3-7). In most cases the individual completing the questionnaire is the person who is primarily responsible for the district's Asbestos program and these individuals have considerable experience in their district. On average, respondents have been with their districts for close to 12 years and in their current positions for just over seven years. This average length of service is significant in terms of respondents' general knowledge about the given issues.

Responses to many of the survey items are very similar across states; when that is the case, the results are reported only for the total sample. In cases where responses differ among the states and sample sizes are sufficient, summary tables by state are provided.

As discussed in Chapter 3, both the respondents' perception of health risk and expressions of concern by the public and staff concerns regarding asbestos-containing materials are the highest of the environmental threats considered, but are significantly lower than the comparable ratings for drugs, alcohol, and tobacco.

4.3.1 Familiarity with Regulations and Recommendations

Question 7 in the Asbestos survey asks respondents to rate, on a five-point scale (where 1 signifies "not familiar" and 5 signifies "very familiar") their levels of familiarity with both state and federal regulations and guidelines for managing and abating asbestos-containing materials. Since the Asbestos-in-Schools Rule under AHERA has been in effect since 1987, it is not surprising to see that the mean levels of familiarity with the federal regulations, as depicted in Table 4-2, are relatively high (total sample mean = 4.2). There is very little differentiation in familiarity among the states, which is also in line with expectations at this stage of the ACM program.

The levels of familiarity with the regulations fall below the sample mean in two states: Pennsylvania and Ohio. In Pennsylvania there was still no Accreditation Plan in place at the time of the survey. Ohio was in the process of revising their Accreditation Plan to close some loopholes and conform more closely with federal standards. Mean levels of familiarity with both sets of regulations are slightly higher in the state of New York, where the Department of Education has done intensive training with school districts.

4.3.2 Receipt of and Response to EPA Materials

One focus of this study is to evaluate the guidance materials that the EPA has provided for school districts on the three programs under study. In Question 8 respondents were asked to indicate the sources of information that their district has used to help determine ACM management and abatement actions. This item was included early in the questionnaire to determine if respondents would mention EPA's materials prior to their being specifically identified. The responses to this question are summarized in Table 4-3. Statistics for the total sample indicate that larger proportions of the districts indicate using EPA's printed materials as well as various workshops and seminars more than any other sources. Only in Illinois, where the state's regulations are much more stringent than AHERA's, is there a slightly larger proportion relying on printed materials from their state health department.

Of the three programs in this study, the Asbestos program is the only one in which EPA has directly disseminated guidance materials to the nation's school districts. Table 4-4 reveals that 80 percent of the respondents recall receiving the materials. This is a much higher

Table 4-2
Reported Level of Familiarity with State and Federal Regulations Concerning Asbestos in Schools

Q7: "How familiar are you with state and federal regulations and guidelines for the management and abatement of problems related to asbestos containing materials in schools?" (1 = not at all familiar to 5 = very familiar)

			State *								
Factor	Statistic	All	Colorado	Idaho	Illinois	New York	Ohio	Penn	S Carolina	Tenn	Texas
Sample size	n	374	44		59	51	58	49		37	74
State regulations and guidelines	mean	4.23	4.30		4.30	4 50	4.00	4.13		4.22	4 28
	SE(mean)	*.04*	*.13*		*.10*	*.10*	*.12*	*.14*		*.13*	*09*
Federal regulations and guidelines	mean	4.20	4.30		4 20	4 40	4.00	4.04		4 23	4 25
	SE(mean)	*.04*	*.13*		*.10*	*.02*	*.12*	*.15*		*.13*	*09*

* Blanks indicate state not in sample for this question.

Table 4-3
Sources of Information Determining Actions Related to Asbestos Containing Material?

Q8: "Which of the following has your district used to help determine actions on the management and abatement of asbestos containing materials?" (more than one may apply)

		Percentage by State *								
Source	All	Colorado	Idaho	Illinois	New York	Ohio	Penn	S.Carolina	Tenn	Texas
Printed materials from the U.S. Environmental Protection Agency	85%	84%		85%	84%	91%	92%		78%	82%
Printed materials from the State Health Dept.	77%	77%		88%	78%	81%	73%		57%	78%
Newspaper, other printed media, TV and Radio	38%	39%		34%	29%	44%	39%		54%	31%
Workshops or seminars	83%	84%		80%	94%	83%	82%		89%	77%
No information has been obtained	1%	0%		0%	2%	3%	0%		0%	0%

* Blanks indicate state not in sample for this question

Table 4-4
Has District Received EPA Asbestos Materials

Q26: "Several booklets and manuals such as "The ABC's of Asbestos in Schools", "100 Commonly Asked Questions about the New AHERA Asbestos-in-School Rule" and "Asbestos in Schools: A Guide to New Federal Requirements" have been provided to local school districts by the U.S. EPA. Do you recall receiving any of these materials?"

	Percentage by State									
Factor	All	Colorado	Idaho	Illinois	New York	Ohio	Penn	S.Carolina	Tenn	Texas
No	19.8%	15.9%		14.3%	15.6%	25.0%	29.2%		21.6%	18.3%
Yes	80.2%	84.1%		85.7%	84.4%	75.0%	70.8%		78.4%	81.7%

Blanks indicate state not used in sample

proportion than exists in either of the other two programs being considered, where state agencies have been responsible for disseminating EPA materials (See Chapter 7.0).

The fact that EPA published and disseminated three different guidance pieces for the schools (see Section 4.1) attests to the complexity of the regulations governing school actions on asbestos. In Question 27 respondents rated these materials on five point scales in terms of their being clear and understandable; instructive and informative; and complete. Mean ratings of the materials, across the seven states, are relatively positive for each of these three categories. Over two-thirds of the respondents report that the materials affected their districts' actions or plans at least "somewhat" (Q28). In addition, the higher the ratings, the more respondents report their plans and actions being affected by the materials. These findings are described for the total sample in Table 4-5.

Table 4-6 describes the responses to Question 29, which queried respondents on where they would have sought guidance on inspecting and correcting for asbestos problems if EPA had not made these materials available. In most of the states, respondents would have turned primarily to the state departments of either health or environment. In Colorado, Ohio and Pennsylvania large proportions (two-thirds or more) say they would have turned to environmental consulting firms. This is an interesting finding and has implications for the EPA in terms of who should have relevant information on environmental concerns affecting schools. EPA may wish to make even more concerted efforts to assure that environmental consulting firms have correct and complete information on school-related programs.

4.3.3 Management Plans

By the time of the survey 98 percent of the districts responding to the survey indicated that their management plans had been submitted to the state (see Table 4-7.) In Tennessee the figure is 100 percent. Lower proportions of the districts said that they had already received comments on their plans from state reviewers (Q12). For example, Table 4-7 reports that fewer than half the Pennsylvania districts had received comments. This is consistent with the fact that the entire AHERA process in Pennsylvania was, to a large extent, "on hold" (See Section 4.2). In Illinois and Tennessee, the two states that have the most thorough review processes and are reviewing, at some level, every plan, just under half the districts had received comments. In several other states, such as Colorado and Ohio, agencies, due to a lack of personnel, are only reviewing a sample of the plans. The important factor to note here is that, for a variety of reasons, many school districts have had to begin implementing their plans without feedback from state reviewers.

Table 4-5
EPA Material's Effect on Actions Concerning Asbestos

Q28: "Did these materials affect your district's actions or plans regarding asbestos in schools?"

Factor	Percentage of Respondents *	Mean Ratings of Materials by Reported Effect **		
		Clear	Informative	Complete
No	28.2%	3.36 (0.14)	3.39 (0.13)	3.44 (0.15)
Yes, somewhat	35.9%	3.58 (0.09)	3.64 (0.09)	3.58 (0.12)
Yes, definitely	35.9%	3.60 (0.10)	3.86 (0.10)	3.95 (0.10)
Ratings by all respondents		3.53 (0.06)	3.65 (0.06)	3.68 (0.07)

* Percentage of respondents (about 80% of the sample) who said they had received some or all of these materials.

** Materials rated on a scale of 1 = not to 5 = very. SE of the mean score in parentheses.

Table 4-6
Alternative Sources of Information Concerning Asbestos if EPA Materials Had Not Been Available

Q29: "If these U.S. EPA materials had not been available, where would your district have sought guidance on inspections and correcting for asbestos problem?" (more than one may apply)

		Percentage by State *								
Where	All	Colorado	Idaho	Illinois	New York	Ohio	Penn	S.Carolina	Tenn	Texas
State Health or Environmental Department	62%	86%		65%	53%	61%	34%		55%	69%
Regional EPA Office	31%	43%		14%	38%	34%	37%		28%	30%
Environmental Consulting Firms	52%	65%		45%	50%	66%	74%		45%	34%
Information may not have been sought	7%	3%		6%	2%	7%	14%		10%	10%

* Blanks indicate state not in sample for this question

Table 4-7
Status of Asbestos Management Plan Submission and State Review

Q10: "Has your district submitted its Asbestos Management Plan for state review?"

		Percentage by State								
Response	All	Colorado	Idaho	Illinois	New York	Ohio	Penn	S Carolina	Tenn	Texas
No	1.9%	2.3%		1.8%	2.0%	3.5%	2.1%		0%	1.4%
Yes	98.1%	97.7%		98.2%	98.0%	96.5%	97.9%		100%	98.6%

Q12: "Has your district received comments on the plan from the state reviewers?"

		Percentage by State								
Response	All	Colorado	Idaho	Illinois	New York	Ohio	Penn	S.Carolina	Tenn	Texas
No	30.0%	23.8%		42.9%	22.4%	3.6%	57.4%		47.2%	21.7%
Yes	70.0%	76.2%		57.1%	77.6%	96.4%	42.6%		52.8%	78.3%

Blanks indicate state not in sample for this question

Some districts that have received comments waited for those comments for the better part of a year (Q12). In Colorado the mean amount of time between district submission and receipt of state comments was around eight months (see Table 4-8). Districts in New York, where only the AHERA "Five" Summaries are reviewed, waited only an average of around three months. Table 4-8 also reveals that in Colorado, Ohio and Pennsylvania, where agencies provided little or no training or other direct assistance, higher proportions of districts have had to make minor changes in their management plans prior to their being accepted. In Tennessee, where the state was very active in the management plan process, a very large proportion of the plans were immediately accepted. However, in Texas, where the state Association of School Boards was very active in assisting school districts with their plans, over three-quarters of the districts responding still were required to make changes. It is possible that this issue is a function of the communications problems between the graduate student reviewers in Texas and the districts, discussed earlier, in Section 4.2. In any event, there is evidence that even when a program is federally mandated, state activity makes a significant difference in what occurs at the district level.

Responses to Question 9 indicate that the largest proportion of inspections and management plans were done by outside contractors. Table 4-9 shows that New York and Texas had the largest proportions of trained district staff participating in these efforts.

In summary, almost all the school districts report that they have submitted management plans but due to various types of lags in state review processes, many are having to implement those plans without adequate review. Levels of state training and assistance effort seem to be making a difference in terms of the numbers of plans that have been accepted as submitted.

4.3.4 Abatement Activities

Responses to Question 15 through Question 18 addressed the types of abatement actions that have been required and the status of these actions. Table 4-10 summarizes these responses. Overall, 70 percent of the districts in the sample say that they had one or more buildings requiring removal of ACM. Across all districts, management plans required removal in an average of 57% of the school buildings. The highest proportion of buildings requiring removal is in Pennsylvania. The lowest proportion is in Texas, which has the largest percentage of buildings constructed since 1980 and a large number of rural school buildings that are constructed using cinderblock with no insulation.

Table 4-8
Time Taken for State Review of Asbestos Management Plan

Variable	Statistic	All	Colorado	Idaho	Illinois	New York	Ohio	Penn	S.Carolina	Tenn	Texas
							State *				
1 Sample size (state review complete)	n	250	32		32	38	54	20		19	54
2. Length of time between Asbestos Management Plan Submission and state review (fraction of a year)	mean	.59	.65		.48	.26	.43	.58		.39	.70
	SE(mean)	*.03*	*.09*		*.05*	*.05*	*.04*	*.10*		*.09*	*05*
3. Was your plan accepted as submitted or were changes required?											
- Plan accepted as submitted	%	36.6%	22.6%		56.3%	73 5%	14 6%	20.0%		94 4%	15 7%
- Minor changes required	%	62.1%	77.4%		43.8%	23.5%	83.3%	80.0%		5 6%	82 4%
- Significant changes required	%	1.3%	0%		0%	2.9%	2 1%	0%		0%	2 0%

* Blanks indicate state not in sample for this question

Table 4-9
Who Did the Asbestos Management Plan

Q9: "Who did, or will do, the inspections and writing of your district's asbestos management plan?"

		Percentage by State						
Who	All	Colorado	Illinois	New York	Ohio	Penn	Tenn	Texas
Outside Contractors	59.5%	59.1%	75.4%	41.2%	77.6%	39.6%	72.2%	52.8%
District Personnel who took training	9.5%	11.4%	1.8%	15.7%	6.9%	6.3%	2.8%	18.1%
Both	27.2%	29.5%	17.5%	33.3%	15.5%	52.1%	22.2%	23.6%
Other	3.8%	0%	5.3%	9.8%	0%	2.1%	2.8%	5.6%

Table 4:10
Asbestos Repair, Replacement, Spraying and Removal Efforts
(Asbestos Version Questions 15, 16, 17, 18)

Variable	Statistic	All	Colorado	Idaho	Illinois	New York	Ohio	Penn	S Carolina	Tenn	Texas
							State				
1. % of buildings requiring repair or replacement of pipes, boiler covers, building materials, etc.	mean	31.3%	23.5%		31.6	42.8%	42.0%	40.0%		34.9%	11.0%
	SE(mean)	*1.78*	*4.59*		*4.80*	*5.27*	*5.27*	*4.64*		*5.18*	*1.78*
2. Status of repair & replacement (% of district reporting need)											
- all completed	mean	33.7%	48.3%		23.3%	27.5%	23.4%	44.4%		33.3%	39.5%
- in progress	mean	53.4%	41.4%		53.5%	60.0%	63.8%	51.1%		53.3%	48.8%
- efforts have not begun	mean	12.9%	10.3%		23.3%	12.5%	12.8%	4.4%		13.3%	11.6%
3. % of buildings requiring spraying	mean	8.6%	9.5%		7.1%	11.4%	13.6%	8.3%		10.8%	2.4%
	SE(mean)	*1.08*	*3.42*		*2.96*	*3.05*	*3.98*	*2.75*		*2.86*	*.65*
4. Status of spray efforts (% of districts reporting need)											
- all complete	mean	63.7%	70.0%		42.9%	66.7%	50.0%	89.5%		33.3%	78.6%
- in progress	mean	23.5%	30.0%		21.4%	33.3%	35.7%	10.5%		25.0%	14.3%
- efforts have not begun	mean	12.7%	0%		35.7%	0%	14.3%	0%		41.7%	7.1%
5. % of districts with building (s) requiring removal	mean	70.6%	75.6%		63.2%	81.4%	73.6%	80.4%		89.2%	50.7%
	SE(mean)	*2.44*	*6.79*		*6.44*	*6.00*	*6.11*	*5.91*		*5.18*	*5.98*
6. % of buildings requiring removal	mean	57.5%	49.3%		71.9%	61.5%	67.5%	58.8%		54.4%	37.2%
	SE(mean)	*.02*	*4.50*		*5.03*	*4.72*	*4.81*	*5.02*		*4.84*	*4.81*
- # buildings	mean	4.09	3.70		2.78	4.59	4.30	3.92		5.00	4.32
- # complete	mean	1.89	1.94		1.22	1.31	2.00	2.42		2.12	2.32
7. When will removal efforts be complete?											
- % completed		30.1%	48.4%		29.4%	17.5%	23.1%	36.6%		22.6%	36.1%
- % < 1 year		17.7%	12.9%		26.5%	15.0%	2.6%	23.7%		25.8%	11.1%
- % < 2 years		12.9%	3.2%		23.5%	17.5%	2.6%	10.5%		22.8%	19.4%
- % > 2 years		22.1%	25.8%		11.8%	27.5%	30.8%	18.4%		22.6%	16.7%
- % no schedule		17.3%	9.7%		8.8%	22.5%	41.0%	10.5%		6.55%	16.7%

Blanks indicate state not in sample for this question

Table 4-9 also indicates that:

- around one-third of repair and replacement actions are completed;
- around two-thirds of encapsulation through spraying is completed; and
- just under a third of removal efforts are completed.

Correlational analysis indicates there is no relationship between the status of abatement actions and whether or not districts have received any comments on their management plans from their state agency. This corroborates concerns that were addressed in Section 4.3.3. The amount of effort that state agencies have had to put forth to review the plans has made it difficult for all districts to receive adequate feedback in sufficient time. AHERA calls for districts to have initiated implementation of their management plans by July, 1989. As reported in Table 4-7, as of the time of the survey (primarily November and December, 1989) nearly one-third of the districts reported that they had received no comments on their plans. These districts had no choice but to move ahead with implementation prior to receiving feedback from state reviewers, or to be in violation of AHERA.

4.3.5 School Expenditures for Asbestos Inspection, Planning and Abatement

To assist EPA in gaining a better understanding of how well the original projections of AHERA's cost to school districts relate to actual cost, Questions 22 and 23 addressed the dollar amounts that districts have already expended and what additional expenditures they anticipate. Table 4-11 summarizes the approximate amounts that school districts have spent so far and the approximate amounts they expect to spend to fully implement their management plans. The highest total expenditures are in New York (an average of over $2 million), the lowest are in Texas (an average of just over $200,000). Average expenditures by district by state are affected by variations in the average size of school districts, and therefore facilities per district. To partially normalize for this, Table 4-11 also indicates the average dollar amount per student that districts have spent and will spend (total estimated expenditures). On an average, districts are spending on asbestos problems what they spend in four and one-half years on instructional materials. In many respects, comparing a "one-shot" expenditure that occurs over a period of a few years to a regular, annual expenditure is comparing the proverbial apples and oranges. Nonetheless, looking at these figures certainly helps to clarify why some administrators complain that these expenditures are taking money away from education (Section 4.3.6).

Table 4-11
Completed and Planned Expenditures for the Asbestos Program

		Average $/District by State									
		All	Colorado	Idaho	Illinois	New York	Ohio	Penn	S Carolina	Tenn	Texas
Q22: Approximately how much money has your district spent so far on inspection, planning and abatement of asbestos containing materials?		$290,759	$127,707		$322,505	$842,545	$178,173	$380,782		$194,521	$77,575
Q23. Approximately how much more money do you expect your district will need to spend to fully implement your Asbestos Management Plan		$676,452	$844,095		$712,552	$1,481,999	$672,235	$488,144		$713,901	$130,638
Total		$979,503	$971,802		$1,035,057	$2,324,544	$850,408	$868,926		$908,422	$208,213
Total Asbestos Expenditures per-student	mean	$406	$268		$920	$878	$315	$265		$180	$55
	SE(mean)	68	50		411	144	62	44		62	10
Annual Instructional Materials Dollars per Student (IDP)	mean	$71	$74		$75	$121	$58	$73		$42	$57
	SE(mean)	2	4		4	5	3	4		2	3
Ratio of Asbestos Expenditures to Annual IDP	mean	4.6	4.0		7.0	7.5	6.3	3.6		4.0	1.1
	SE(mean)	0.4	0.7		1.4	1.3	2.5	0.6		1.1	0.2
Percentage of Buildings Built Since 1980	mean	19%	21%		12%	17%	9%	16%		18%	34%
	SE(mean)	1.4	4.3		3.7	3.9	2.5	3.3		3.7	3.8
Percentage of Buildings Built Before 1959	mean	36%	33%		44%	41%	47%	38%		27%	25%
	SE (mean)	1.6	4.4		4.7	4.2	4.4	4.0		4.5	3.1

Blanks indicate state not in sample for this questions

4.3.6 Overall Program Evaluation and Comments

In Question 30 and Question 31 respondents rated, on five point scales, the factors that were important in motivating and helping the districts in their asbestos-related actions and those factors that were impediments. Table 4-12 indicates that federal requirements and recommendations were rated as the most important motivating factors for the sample as a whole. In Illinois and New York, where state requirements are more rigorous than AHERA's, state requirements and recommendations are rated as just slightly more important than EPA's.

Funding concerns are what respondents see as the serious impediments (Table 4-13) For the total sample, "inadequate district funds," "inadequate state funds" and "inadequate staff to handle the extra work" all received mean ratings of between 3.0 and 4.0 on five-point scales where 1 signifies "not serious" and 5 signifies "very serious". In Ohio and Tennessee "inadequate district funds" received mean ratings above 4.0 while "inadequate state funds" received mean ratings above 4.0 in every state except Pennsylvania (3.56) and Texas (3.52). As might be expected, the proportions of total estimated expenditures that have already been spent (i.e., ACM work completed) are correlated negatively with ratings of "inadequate district funds" as a serious impediment.

Very few respondents added comments to their responses about motivating and impeding factors. Of those who did, 14 complained about the financial aspects of the program and noted that the program is taking money from education. Twelve respondents believe that the problem is exaggerated and that the regulations are too demanding. Other comments addressed a need for improved communication between EPA and state agencies and a need for clearer guidelines. These comments are summarized for all three programs in Chapter 7.

In summary, most respondents do not believe that they have had inadequate information from either EPA or their state agencies. If there are serious impediments to getting the job done with respect to asbestos, those perceived impediments are insufficient funds.

4.4 SUMMARY AND IMPLICATIONS

AHERA is a federally mandated program which carries with it specific penalties for non-compliance. As would be expected, the districts in this study are very familiar with both federal and state regulations and are essentially in compliance. Almost all have submitted management plans, and, in accordance with the mandated time line, have begun implementation of their plans even when they have had no feedback from the state. The amount of effort that states have put forth in training school district personnel and assisting

Table 4-12
Rating of Motivating Factors for the Asbestos Program

Q30: "How important, if at all, do you think each of the following has been in motivating and helping your district to take action on potential health risks due to asbestos? (1 = not important to 5 = very important)

Factor	Statistic	All	Colorado	Idaho	Illinois	New York	Ohio	Penn	S Carolina	Tenn	Texas
			State *								
Sample size	n	374	44		59	51	58	49		37	74
State requirements & recommendations	mean	4.32	4.30		4.44	4.70	4.24	4.06		4.29	4.30
	SE(mean)	*.05*	*.16*		*.12*	*.10*	*.12*	*.19*		*.18*	*.12*
Federal requirements & recommendations	mean	4.49	4.45		4.43	4.62	4.45	4.31		4.69	4.58
	SE(mean)	*.04*	*.13*		*.12*	*.12*	*.10*	*.17*		*.09*	*.08*
State technical assistance	mean	2.63	2.53		2.22	3.10	2.73	2.31		3.39	2.41
	SE(mean)	*.08*	*.21*		*.20*	*.22*	*.21*	*.23*		*.24*	*.17*
State financial assistance	mean	1.99	1.66		1.58	3.00	1.86	2.03		2.74	1.53
	SE(mean)	*.08*	*.22*		*.16*	*.24*	*.18*	*.21*		*.32*	*.12*
U.S. EPA materials and technical assistance	mean	2.93	2.64		2.32	3.12	3.10	3.37		3.19	2.97
	SE(mean)	*.07*	*.22*		*.18*	*.20*	*.17*	*.24*		*.23*	*.15*
Concerns expressed by public, media	mean	2.72	2.33		2.43	3.15	2.92	3.17		2.84	2.31
	SE(mean)	*.08*	*.22*		*.18*	*.21*	*.18*	*.22*		*.26*	*.16*

* Blank indicates state not in sample for this question

Table 4-13
Rating of Impeding Factors for the Asbestos Program

Q31: "How serious, if at all, do you think each of the following has been in impeding your district in taking action on asbestos?"
(1 = not serious to 5 = very serious)

Factor	Statistic	All	Colorado	Idaho	Illinois	New York	Ohio	Penn	S.Carolina	Tenn	Texas
							State *				
Sample size	n	374	44		59	51	58	49		37	74
Inadequate district funds	mean	3.79	3.83		3.95	3.80	4.05	3.41		4.29	3.42
	SE(mean)	*.08*	*.18*		*.20*	*.21*	*.19*	*.24*		*.21*	*.19*
Inadequate state funds	mean	3.98	4.22		4.22	4.09	4.16	3.56		4.41	3.52
	SE(mean)	*.08*	*.19*		*.20*	*.21*	*.19*	*.23*		*.18*	*.20*
Inadequate information from the U.S. EPA	mean	2.38	2.54		2.43	2.40	2.25	2.20		2.75	2.27
	SE(mean)	*.07*	*.21*		*.18*	*.18*	*.16*	*.17*		*.23*	*.18*
Inadequate information from state agencies	mean	2.49	2.60		2.51	2.68	2.29	2.33		2.66	2.45
	SE(mean)	*.07*	*.23*		*.18*	*.19*	*.15*	*.19*		*.23*	*.18*
Inadequate expertise in district	mean	2.70	2.88		2.65	2.91	2.86	2.20		3.20	2.45
	SE(mean)	*.08*	*.23*		*.19*	*.21*	*.19*	*.19*		*.29*	*.18*
Inadequate staff to handle extra work	mean	3.25	3.38		2.96	3.56	3.27	2.93		3.91	3.07
	SE(mean)	*.08*	*.23*		*.20*	*.19*	*.20*	*.23*		*.26*	*.20*

* Blank indicate state not in sample for this question

them in other ways has affected the quality of the management plans. Those states that did little or no training generally have higher proportions of districts that had to make some changes in their plans before they were accepted.

EPA's guidance materials on the asbestos program receive relatively positive ratings. Clear majorities of the respondents received and are familiar with the materials, which were disseminated directly to the districts by the EPA. A surprisingly high proportion of respondents in some states say that they would have turned to environmental consulting firms for information if EPA had not made guidance materials available. In most states, respondents say they would have sought guidance from appropriate state agencies.

The economic costs of complying with AHERA are very high. While districts seem relatively satisfied with the information that they have received from EPA and from their states, they are likely to cite lack of funds as a serious impediment to getting the job done. The immense efforts that result from complying with AHERA affect responses to other environmental hazards, as we see in later sections.

5.0 LEAD IN SCHOOL DRINKING WATER PROGRAM AND ANALYSIS

5.1 BACKGROUND AND EPA PROGRAM

Prior to the 1986 amendments to the Safe Drinking Water Act, lead was one of the most commonly used metals in the construction of plumbing systems. Copper pipes, commonly used since World War II, were joined with lead solder and lead pipes have been used in the water distribution systems of many cities. Water coolers that can be found in all public buildings, including schools, were frequently manufactured with lead linings, lead solder or lead parts. Relatively recent research indicates that lead in plumbing systems can and does seep into the drinking water and that lead is highly toxic and harmful to the public health, particularly to children.

5.1.1 The Lead Contamination Control Act

In response to this information, Congress passed the Lead Contamination Control Act (LCCA). The LCCA is an additional amendment to the Safe Drinking Water Act and became law November 1, 1988. It requires the Environmental Protection Agency to provide guidance to states and localities in testing for and remedying lead contamination in drinking water in schools and day care centers. The Act also contains specific requirements for testing, recall, repair and/or replacement of water coolers with lead-lined storage tanks or with parts containing lead.

Specifically, the Act requires:

- EPA to identify and publish a list of drinking water coolers that contain lead and to prohibit the manufacture and sale in interstate commerce of water coolers that are not lead free;

- the Consumers Products Safety Commission to issue an order requiring manufactures to either repair, replace or recall these coolers;

- EPA to publish and distribute to the states a guidance document and protocol on testing for and remedying high levels of lead in a school's drinking water both in coolers and all other outlets, with each state providing for dissemination of the guidance materials and the list of water coolers that are not lead free;

- state certification of laboratories that test drinking water and publication, by the states, of lists of certified laboratories;

- state-established programs for helping schools to monitor for and remedy high lead levels in their drinking water; and

- EPA grants (at this point authorized but not funded) to assist states.

The only actual mandate to the schools requires them to make available the results of any testing for lead in drinking water that they conduct.

In summary, the LCCA, as it relates to schools, is essentially a voluntary testing program. Mandatory elements apply primarily to the states and water cooler manufacturers.

5.1.2 State Coordinating Agencies

In February 1989, the EPA's Office of Drinking Water sent letters to all state and territorial governors requesting that they appoint a coordinating or contact agency for the Lead in School Drinking Water program. As of March 1990, only two states had not complied with this request.

5.1.3 Water Coolers

The first list of affected water coolers was published in the Federal Register in February 1989, and was disseminated to state agencies in April 1989. The finalized list, which was somewhat shorter, was published in the Register on January 19, 1990. The only recall necessary thus far has been negotiated with the manufacturer and this information was published in the Register on April 19, 1990. However, additional information about coolers continues to surface so the process of reviewing water coolers is a continuing one.

5.1.4 The EPA Manual

The manual, "Lead in School's Drinking Water," was published by the EPA's Office of Drinking Water in April 1989. The manual was to be disseminated to the appropriate state agencies through EPA regional offices. State agencies received a camera-ready copy and a limited number of bound copies of the manual. EPA expected state agencies either to purchase or photocopy a sufficient number to disseminate to their local school districts, as required by the LCCA.

Every local school district received a flyer from EPA, notifying them of the manual's availability. The flyer contained a form to order the manual from the Government Printing Office at a cost of $3.25. However, no Government Printing Office number appeared on the order form, so it was not possible to track how many manuals were actually ordered as a result of the flyer. School district survey results, reported later, indicate that relatively few manuals were ordered from the flyer alone.

The manual is labeled an interim document; no revisions have been made as yet. Final manuals are being published for nursery schools and day care centers and these are scheduled for dissemination during 1990.

5.1.5 Regional Training Seminars

The EPA conducted five regional training seminars for state agency personnel between April and June 1989. These seminars were held in Atlanta, GA, Boston, MA, Chicago, IL, Denver, CO, and Seattle, WA. Attendees were encouraged to use the materials and information that they received in these seminars to conduct similar training sessions for school district personnel in their own states. An additional seminar was offered by the National Association of School Boards in Washington, D.C. in June 1989, and other seminars that addressed lead in drinking water and other environmental concerns were conducted jointly by EPA and various school organizations in October 1989.

5.1.6 National Primary Drinking Water Regulations

Revised National Primary Drinking Water Regulations for lead in drinking water are scheduled to be finalized by late 1990. The final "action level" for water suppliers is likely to be lower than the current maximum contaminant level (MCL) of 50 ppb. EPA recommends that schools take action to limit exposure or reduce lead in drinking water from outlets wherever current lead levels exceed 20 ppb.

5.1.7 Additional Comments

The Lead in School Drinking Water program is relatively new and is still evolving. Several factors are important to note. The first is that the mandate to the states to establish a program for assisting schools in testing for and remedying high lead levels is relatively vague and contains no penalties if states choose not to comply. Secondly, while Congress authorized the EPA to establish a grant program to assist the states in their efforts, no funds have, as yet, been appropriated. Therefore, the mandate to the states is, at this point, an

unfunded one, leaving the costs of implementing testing and remediation programs to the states and the local school districts. Finally, the presentation of EPA guidelines as "interim" may, as a result of earlier experiences with costly changes in the asbestos regulations, lead some schools to defer any actions. This could be compounded further by the limited direct distribution of EPA's guidance materials.

5.2 THE STATE PROGRAMS: LEAD IN SCHOOL DRINKING WATER

There is a great deal of disparity among the nine states with respect to the Lead in School Drinking Water Program. As indicated earlier, states are mandated to establish programs to assist the school districts in testing for and correcting lead in drinking water problems but the mandate is a vague one and specifies no sanctions if states do not comply. At the time of this study some states had already become very active, disseminating materials, conducting training and implementing on-site consulting with schools. Others had done very little. Table 5-1 summarizes the activities across the states.

5.2.1 Colorado

The contact agency in Colorado for the Lead in School Drinking Water program is the Office of Drinking Water, Department of Health. The state has been somewhat inactive with respect to this program. According to a key informant in the Office of Drinking Water, this inactivity is the result of insufficient resources. The office finds that they barely have sufficient resources to enforce the original Safe Drinking Water Act "let alone the LCCA."

A representative of the office did attend the EPA training seminar in Denver in May 1989, but, because of insufficient staffing, there was no subsequent training for school district personnel. With the cooperation of the Colorado Association of School Boards, copies of EPA's manual, "Lead in School's Drinking Water," have been distributed to all public school districts. The office has not had the resources to distribute any additional materials.

The state's Office of Drinking Water receives the test results from any school district using the state's laboratory facilities and they do contact schools whose lead levels are high. In addition, they consult on appropriate mitigation techniques with any schools who contact them for assistance. In other words, their position is a reactive rather than a proactive one.

At the time of the second interview, depending upon the office's ability to hire an additional staff person in the spring, they were planning to contact districts who have not sampled and encourage them to do so. They were also planning to ask districts who are using laboratories other than the state's to send their results to the Office of Drinking Water. No plans for training or developing or disseminating additional materials were mentioned. The issue of financial and technical resources appears to be a major one for this particular office.

Table 5-1
Summary of State Lead in Drinking Water Programs
(March 1990)

STATE	ATTEND EPA SEMINAR	DISSEMINATE EPA MATERIALS	DISSEMINATE ADDITIONAL MATERIALS	TRAINING[a]	CONTACT WHEN LEVELS HIGH	ON-SITE CONSULTING/ ASSISTANCE	COLLECT DATA
COLORADO	X	X			X		
IDAHO	X	X	X				X
ILLINOIS	X	X		M		X	
NEW YORK		X	X	EX			X
OHIO				M	X		
PENNSYLVANIA	X						
SO CAROLINA	X	X	X	EX		X	
TENNESSEE	X	X	X	EX			
TEXAS		X	X	EX			

[a] M = Moderate training; EX - Extensive Training

5.2.2 Idaho

The contact agency in Idaho for the Lead in School Drinking Water program is the Department of Education. This designation occurred upon the recommendation of the Department of Health, whose situation was described as having no resources to deal with the LCCA and as having enough difficulty keeping up with the demands of the Safe Drinking Water Act. The state has been somewhat active with respect to this program.

A representative of the Department of Education attended the EPA training seminar in Seattle in June, 1989. The seminar was described as inadequate for giving a non-technical person what is needed to conduct similar sessions for school personnel. Consequently, there was no subsequent training for school district personnel in Idaho.

In cooperation with the state's Department of Health, the agency has distributed, to every school district, a packet that contained:

- a photocopy of the manual, "Lead in School's Drinking Water";
- a list of offices and agencies, in each of the state's six regions, that hold appropriate expertise and could assist school districts with testing and remediation;
- the EPA list of water coolers with lead lined tanks or lead parts;
- a list of the state's certified laboratories; and
- a questionnaire, asking for the number of water coolers in each school, the number of lead-lined water coolers, a description of sampling activities and results, a description of remediation efforts and a response to a question about public notification of test results.

A key informant in Idaho expressed general disappointment in the way the EPA is conducting the Lead in School Drinking Water program. He believes that as long as the program is "permissive," the desired actions from states and local school districts will not occur. He suggests that, if the program to succeed, EPA must:

- find some way to help states and school districts offset their costs;
- give more intensive training and guidance; and
- provide a model program rather than expecting state agencies to create a program.

5.2.3 Illinois

The contact agency in Illinois for the Lead in School Drinking Water program is the Division of Environmental Health. The state has been somewhat active with respect to this program. The representative from the division commented that they are doing all they can, given the lack of available funds. He also noted that school superintendents were resistant to the program because "they know radon is coming and they were just zapped with asbestos."

Three representatives attended the EPA training seminar in Chicago in May 1989. Subsequently, the agency conducted a training session for state employed plumbers and regional engineers as well as a seminar for school superintendents. They encouraged regional engineers to conduct similar training sessions for school personnel in their regions but are not certain if all engineers complied. The degree of compliance probably depended upon the amount of requests for information. The division is not tracking these training sessions.

During the summer of 1989, public school districts received packets containing the following:

- a cover letter;
- a photocopy of the manual, "Lead in School's Drinking Water";
- an order form for additional copies of the manual;
- a copy of the Lead Contamination Control Act;
- the EPA list of water coolers with lead-lined tanks or lead parts; and
- a list of the state's certified laboratories.

The agency is providing additional information to schools on request and regional engineers are advised to sample for lead in the drinking water whenever they are in a school building. It is interesting to note how much more stringent the state is with respect to its asbestos program than it is with respect to lead in drinking water.

5.2.4 New York

The contact agency in New York for the Lead in School Drinking Water program is the Department of Health, working in cooperation with the Departments of Education, Social Services and State (which is in charge of building codes). The state has been somewhat active with respect to this program in spite of some differing ideas on approach between the Departments of Health and Education.

In 1989 there was a statewide prohibition on out-of-state travel because of budgetary constraints; consequently, no one from New York attended the EPA training seminar in Boston in April 1989. Nonetheless, the Health Department has provided training to school districts at regional Boards of Cooperative Educational Services (BOCES) meetings throughout the state. They have also made several presentations, by invitation, in individual school districts.

They disseminated photocopies of the manual, "Lead in School's Drinking Water" to all school districts in May 1989 and, at a later point, disseminated the EPA list of water coolers with lead-lined tanks or lead parts as well as a fact sheet with additional information about the program.

They are disseminating, through the BOCES, a questionnaire which asks for information on:

- sampling activities and results; and
- a description of remediation efforts.

Respondents in New York express some frustration with the EPA, claiming that the "right hand doesn't know what the left hand is doing." They have found that, when school personnel contact the EPA regional office, there are differing responses to questions, particularly about MCLs. This very probably relates to the difference between what is currently regarded as acceptable for water suppliers (50 ppb) and what is recommended for school drinking water at each outlet (20 ppb). EPA staff is aware that this differentiation has been confusing.

In addition, since multiple New York agencies deal with environmental issues, EPA's dissemination of materials to only one agency may not be adequate. Finally, one New York respondent commented that it would be helpful if EPA "would get off this interim stuff."

5.2.5 Ohio

The contact agency in Ohio for the Lead in School Drinking Water Program is the Department of Health. The state has been somewhat inactive with respect to this program.

Initially, there was difficulty in deciding which agency -- the Department of Health or the Ohio Environmental Protection Agency -- should act as the contact agency. Both agencies claimed insufficient funds to deal with the program. In March 1989 the two agencies cooperatively drafted a letter to the EPA Regional Office, stating that neither agency was willing to implement the LCCA unless federal funding were made available. They later notified the EPA Regional Office that the Health Department would act as the contact

agency but that no significant progress could be made without funding. One respondent called this "a classic case of the federal government setting up a program with no money and then the states set themselves up to get shot at."

Two representatives of the Health Department did attend the EPA training seminar in Chicago in May 1989. The department held eight workshops for local and county health department personnel but none specifically for school district personnel.

There are no funds for either purchasing or photocopying the "Lead in School's Drinking Water" manual. Consequently, none has been disseminated to school districts by the Health Department. Schools that have their own water supplies and are, therefore, categorized as public water suppliers have received some information on the program with advice to sample the drinking water for lead.

Some results of sampling in both homes and schools have been sent to the department and the department has contacted those entities with high levels of lead and advised them to retest. Remediation procedures have been explained. The department has no statistics on what proportion of school districts have sent them sample results nor do they have information on how schools are dealing with repair or replacement of water coolers with lead-lined tanks or lead parts.

One respondent expressed the opinion that this program has been "handled very loosely" by the federal government. As of February 1990, there was still no water cooler recall from the Consumer Products Safety Commission. (As stated in Section 5.1, this information was not published in the Federal Register until April.) The delay in publishing this information coupled with no funds being appropriated caused this individual to express concern about how seriously the federal government views lead in drinking water.

5.2.6 Pennsylvania

The contact agency in Pennsylvania for the Lead in School Drinking Water program is the Department of Environmental Resources. Inadequate funding has caused the state to be somewhat inactive, thus far, with respect to this program.

A representative of the department did attend the EPA training seminar in the spring of 1989 but, due to insufficient staff, there have been no training sessions for school district personnel. The department has requested funds to hire a consulting firm to train personnel from the schools but as of March 1990, that request had not been approved.

The department has purchased 6,000 copies of the manual, "Lead in School's Drinking Water," but these had not been disseminated as of March 1990. The department planned to send the manuals in packets which would also contain

- a cover letter;
- the newly revised EPA list of water coolers with lead-lined tanks or lead parts; and
- a list of the state's certified laboratories.

Sending the packets was "on hold," pending the above-mentioned request for training funds. If the request were not approved, they would delete the reference to training from the cover letter and send the packets "soon." The department had sent around 40 packets to districts that had requested the information.

The department originally proposed that they would provide technical consulting on remediation, with less affluent school districts receiving the greater proportion of assistance. No allocation of funds was made for this purpose.

A key informant described the EPA manual as a good one and found it to be clear and well-written; but he believes that the guidelines are complex enough to require some training for personnel and questions the state's willingness to provide the requested funding.

5.2.7 South Carolina

The contact agency in South Carolina for the Lead in School Drinking Water program is the Bureau of Water Supply and Special Programs, Department of Health and Environmental Control, working in cooperation with the Department of Education. The governor of South Carolina appointed a contact agency early in the process of this program. The Bureau of Water Supply had published their own booklet on the original requirements of the Safe Drinking Water Act and the state has been very active with respect to this program.

A representative of the bureau attended the EPA training seminar in Atlanta in May 1989. The agency conducted subsequent seminars for school officials and maintenance personnel throughout the state and also met with individual school boards.

Copies of the manual, "Lead in School's Drinking Water" were distributed to all school districts in packets which also contained:

- the EPA list of water coolers with lead-lined tanks or lead parts;
- a list of the state's certified laboratories; and
- two booklets developed by the state, "Lead in Your Drinking Water" and "Common Water Quality Problems and Their Treatment."

In addition, staff members of the bureau have visited all schools in the state and provided consultation on sampling. Considerable publicity has been generated about the issue and the bureau is finding that schools are contacting them and taking action if their samples indicate lead in drinking water problems.

5.2.8 Tennessee

The contact agency for the Lead in School Drinking Water program is the Division of Water Supply, Department of Health. The state has been somewhat active with respect to this program.

A representative of the division attended the EPA seminar in Atlanta in May 1989. In July, the agency, in cooperation with the Department of Education and the Association of School Boards, conducted a series of training sessions for school districts on lead in drinking water, radon gas, underground storage tanks and asbestos. A second series of training sessions was conducted in December 1989 and January 1990.

Because they believe that some portions of the manual, "Lead in School's Drinking Water" are unnecessarily complicated, the agency reproduced only particular sections and, in cooperation with the Department of Education, disseminated these to all school districts in packets also containing:

- a letter from the Consumer Products Safety Commission;
- a list of the state's certified laboratories; and
- information on ordering the manual, "Lead in School's Drinking Water."

Updates and reminders about the program are included in the Department of Education's periodic mailings.

The division is receiving questions from school superintendents about what the law actually requires them to do. One respondent noted that a close reading of the LCCA indicates that schools do not have to sample for lead in the drinking water and commented that EPA's procedures could have been "a lot better."

The division has requested schools to send copies of their sampling results from water coolers to the Consumer Products Safety Commission, but they have no way of knowing if this is occurring. As of February 1990, they were relatively sure that only a fraction of the schools were complying with this request.

5.2.9 Texas

The contact agency in Texas for the Lead in School Drinking Water program is the Division of Water Hygiene, Department of Health. The state has been somewhat active with respect to this program, in spite of initial expressions of concern about insufficient staff and funding. During the initial interviews, one respondent commented that the federal government cannot "just give this to the states and expect them to take this on; the state's resources don't allow for it."

One representative of the division attended the EPA training seminar in Atlanta in May 1989. Subsequently, the agency conducted a seminar for school superintendents. The Lead Contamination Control Act has been addressed at approximately 15 to 20 regional seminars and a representative of the division spoke about the Lead in School Drinking Water program at a National Education Association day-long meeting on environmental issues.

In June 1989, the division, in cooperation with the Department of Education, sent each school district a packet which contained:

- a photocopy of the manual, "Lead in School's Drinking Water";
- the EPA list of water coolers with lead-lined tanks or lead parts;
- a suggested protocol for determining which water coolers are not lead free; and
- cost information.

This packet was followed by a letter that was signed jointly by the Commissioner of Health and the Commissioner of Education and requested schools to send their sampling results to the Consumer Products Safety Commission with a copy to the Division of Water Hygiene There has been considerable response from the schools to this request and, while the respondent had no firm statistics, he believed that he had "about a foot" of sampling results on file.

According to one respondent, the delay in publishing water cooler recall information caused some confusion for school personnel as did the delay in publishing a final list of water coolers requiring repair or replacement.

5.3 RESPONSE FROM THE SCHOOL DISTRICTS

Four hundred and thirty-six school districts in nine states responded to the survey on Lead in Drinking Water. Over two-thirds (72%) of the respondents are school superintendents (Table 3-7). Respondents are primarily the individuals who are directly responsible for the program(s) being studied and have considerable experience in their district. On average, respondents have been with their district about 11 years and in their current position for seven years. These figures indicate that respondents' average length of service is significant in terms of respondents' general knowledge about their district.

Responses to many of the survey items are very similar across states and when that is the case the results are reported for the total sample. When differences among states are worth noting, and where sample sizes are sufficient, findings are reported by state in summary tables.

Early questions in the survey instrument (Q7 and Q8) dealt with some descriptors of the districts such as the sources of their water supplies and any regular drinking water testing programs. Districts that own their own water supplies are considered public water suppliers and are, therefore, affected differently by the LCCA (See Section 5.1.6.). Only one-fourth (25%) of the districts in the sample indicate that they own their water supply. A clear majority (80%) of the sample purchase all or some of their water from their local community while a very small proportion (7%) purchase water from private suppliers.

Nearly half (47%) of the districts report that there is no regular program for testing their districts' water for contaminants, metals or other problems. Those districts that do have regular testing programs report a very wide range of frequencies from annually to weekly. These findings are summarized in Table 5-2.

As discussed in Chapter 3, both the respondents' perceptions of health risk and expressions of public and staff concerns regarding lead in drinking are relatively low across the whole sample. These ratings fall just ahead of those for radon and other drinking water concerns, but significantly less than concerns about asbestos containing materials.

5.3.1 Familiarity with Regulations and Recommendations

In Question 9 respondents were asked to rate, on a five-point scale from "not at all familiar" [1] to "very familiar" [5], their level of familiarity with both their state's and the federal regulations and guidelines for testing for and correcting lead in school drinking water. Table 5-3 describes the mean ratings for the total sample and for each state.

Table 5-2
Drinking Water Testing Frequency

Q8: "Is there a regular program for testing your districts drinking water for contaminants, metals, or other problems?" (N=411)

	Number	Percent
No	191	46.5%
Yes	220	53.5%

Q8A: (If yes to Q8), "How often does your district test drinking water supplies?" (N=188)

	Number	Percent
More often than monthly	17	9%
Monthly	62	33%
Less often than monthly but more often than annually	63	33%
Annually	46	25%

Table 5-3
Reported Level of Familiarity with State and Federal Regulations Concerning Lead in School Drinking Water

Q9: "How familiar are you with state and federal regulations and guidelines for testing for and correcting lead in school drinking water?"
(1 = Not at all familiar to 5 = very familiar)

			State								
Factor	Statistic	All	Colorado	Idaho	Illinois	New York	Ohio	Penn	S Carolina	Tenn	Texas
Sample size	n	436	41	41	57	53	47	51	36	31	72
State regulations and guidelines	mean	3.07	3.07	3.00	2.35	3.44	2.89	3.14	3.56	2.45	3.58
	SE(mean)	*.06*	*.19*	*.16*	*.16*	*.17*	*.15*	*.16*	*.16*	*.17*	*.15*
Federal regulations and guidelines	mean	3.06	3.05	3.00	2.33	3.36	2.78	3.10	3.56	2.55	3.61
	SE(mean)	*.06*	*.18*	*.16*	*.15*	*.17*	*.15*	*.16*	*.15*	*.18*	*.14*

Within the total sample the levels of familiarity with state and with federal regulations and guidelines are very similar but reported levels of familiarity are somewhat higher in three states (New York, So. Carolina and Texas). As we noted in Section 5.2, each of these states has conducted relatively extensive training on lead in drinking water for school districts and each has fully disseminated both EPA and other materials on the program. The state of Tennessee has also implemented training and disseminated materials and had accomplished both these actions by the time of the districts' survey; nonetheless, the mean ratings of familiarity in Tennessee are lower than would be expected, given this level of state effort. Subsequent analysis (Section 5.3.5) suggests that financial considerations may be affecting the responses of Tennessee's districts to the Lead in Drinking Water program.

5.3.2 Receipt of and Response to EPA Materials

One focus of this study is to explore the importance and usefulness of EPA's training activities and materials to the nation's school districts. Question 10 of the survey inquires about the information sources school districts have used to help determine their actions on testing for and correcting lead in drinking water problems. This question preceded any detailed discussion of the program to see if respondents would identify EPA efforts and materials prior to their being described in the questionnaire. The results of Question 10, reported in Table 5-4, indicate that EPA materials were important. In general, more respondents cite printed materials from the EPA than they do any other source. Printed materials from state health departments are also used significantly; in Colorado and Texas, state materials are cited by a higher proportion of respondents than are EPA materials. Respondents in Colorado are also more likely to use the media in this regard.

Subsequent questions about the EPA materials find that nearly half the respondents report they have received EPA's manual, "Lead in School's Drinking Water (Q17)." Nearly one-third reported that they did not have the manual and almost one-fifth said that they did not know.

Table 5-5 summarizes from where, if at all, school districts have obtained the EPA manual (Q16) and reveals some interesting facts. First, the states that have been at least somewhat active with respect to materials dissemination and training (i.e. Idaho, New York, So. Carolina, Tennessee and Texas) do have the lowest proportions of districts reporting no awareness of the manual. This is certainly indicative that state activities have had an impact on the awareness of EPA materials. Secondly, relatively low proportions across the states say that they have "no current plans to obtain the manual" (from 2% in Idaho to 15% in Colorado). And, finally, state departments of health or education are, in general, the more likely sources for obtaining the manual, while the Government Printing Office, through the order form enclosed in EPA's flyer, is the least likely source. These findings strongly suggest

Table 5-4
Sources of Information Determining Actions Related to Lead in Drinking Water

Q10: "Which of the following has your district used to help determine actions on testing for and correcting lead in drinking waer problems?" (more than one may apply)

		Percentage by State								
Source	All	Colorado	Idaho	Illinois	New York	Ohio	Penn	S.Carolina	Tenn	Texas
Printed materials from the U.S. EPA	70%	61%	76%	54%	70%	68%	72%	92%	58%	78%
Printed materials from the State Health Department	64%	78%	68%	42%	64%	57%	52%	78%	55%	88%
Newspaper, other printed media, TV and Radio	24%	41%	22%	33%	21%	11%	36%	19%	19%	15%
Workshops or seminars	22%	22%	12%	4%	38%	11%	28%	22%	48%	21%
No information has been obtained	11%	17%	10%	26%	2%	21%	4%	3%	13%	3%

Table 5-5
Where Districts are Obtaining the EPA Manual Entitled "Lead in School Drinking Water"

Q16: "In the spring of 1989, the U.S. Environmental Protection Agency (EPA) sent a flyer to all local school districts and state health and education agencies announcing a manual entitled "Lead in School Drinking Water". From where, if at all, have you obtained or will you obtain this manual?" (more than one may apply)

	Percentage by State									
Where	All	Colorado	Idaho	Illinois	New York	Ohio	Penn	S.Carolina	Tenn	Texas
Government Printing office using order form in the flyer	13%	15%	10%	21%	17%	4%	11%	17%	10%	10%
State Department of Education or Department of Health	34%	33%	51%	18%	48%	17%	16%	42%	55%	39%
From the Regional EPA or the Federal EPA offices	18%	25%	17%	18%	8%	13%	25%	22%	23%	18%
Not aware of this manual	23%	35%	12%	33%	13%	49%	29%	6%	13%	14%
No current plans to obtain this manual	8%	15%	2%	11%	8%	9%	10%	3%	3%	10%
Q17: Have you received the manual?										
No	31.8%	46.2%	19.5%	46.4%	26.9%	46.7%	43.8%	11.1%	29.0%	17.1%
Yes	49.2%	28.2%	68.3%	37.5%	59.6%	22.2%	37.5%	77.8%	48.4%	62.9%
Don't know	19.1%	25.6%	12.2%	16.1%	13.5%	31.1%	18.8%	11.1%	22.6%	20.0%

that attempting to reach the school districts with a flyer and an order form that requires them to pay for materials is not a successful information dissemination strategy. Such time and money would appear to be more effectively spent in more substantive communication with appropriate state agencies.

In Question 18 and Question 19 respondents who had obtained the "Lead in School's Drinking Water" manual were asked about its effects on their districts' actions or plans regarding lead in drinking water tests and were also asked to use five point scales to rate the manual on three descriptors: clear and understandable; instructive and informative; and complete. Table 5-6 shows that almost two-thirds of those who have obtained the manual report that it had at least some impact on either their actions or their planned actions. The table also indicates that the mean ratings of the manual in the three above-mentioned categories are positive. In addition, Table 5-6 shows that the higher the mean ratings of the manual, the greater its reported effect on a district's actions or planned actions.

Receipt of the manual is positively correlated with familiarity with federal regulations and recommendations and with state regulations and recommendations. These correlations reinforce two points.

1. The manual is having a positive effect with respect to imparting necessary information about federal regulations and recommendations.

2. Since the manual obviously does not address state programs, a relationship between receipt of the manual and familiarity with state regulations and recommendations can only be occurring because of the additional state efforts that are accompanying the manual's dissemination.

Table 5-7 describes the sources that state agencies would have used for information on testing for and remedying lead in drinking water if the EPA's manual had not been available (Q20). The majority of respondents indicate that they would have sought the information from their state department of health or environment. It is interesting to note that, in Colorado, Illinois, Pennsylvania and Texas, relatively substantial proportions of respondents say they would have sought guidance from environmental consulting firms. This has implications for EPA in terms of the audience for its materials. If school districts turn to private consulting firms for this type of information and guidance, then EPA may wish to assure that such firms have the correct information to impart.

In summary, those respondents who have obtained "Lead in Schools' Drinking Water" generally regard it as a useful tool that is clear, informative and complete. It has had an effect on districts' actions. The problem lies, not in the manual itself, but in its distribution. Reliance on state agencies to disseminate this tool has not been totally effective. In

Table 5-6
Manual's Effect on Actions or Plans Concerning Lead

Q19: "Did the manual affect your district's actions or plans regarding testing the drinking water for lead?"

Response	Number of Respondents	Percentage of Respondents*	Mean Ratings of Manual by Reported Effect **		
			Clear	Informative	Complete
No	73	36.0%	3.53 (0.14)	3.63 (0.13)	3.65 (0.15)
Yes, somewhat	72	35.0%	3.79 (0.10)	3.87 (0.10)	3.79 (0.11)
Yes, definitely	60	29.0%	4.05 (0.63)	4.18 (0.97)	4.25 (0.11)
Ratings by all respondents			3.77 (0.07)	3.87 (0.07)	3.87 (0.07)

* Percentage of respondents (approximately 50%) who reported having received the manual
** Standard error of mean in parentheses

Table 5-7
Alternative Sources of Information Concerning Lead in Drinking Water if the EPA Manual had not Been Available

Q20: "If the manual 'Lead in School Drinking Water' had not been available, where would your district have sought guidance on testing and correcting for lead in drinking water supplies?" (more than one may apply)

	Percentage by State									
Source	All	Colorado	Idaho	Illinois	New York	Ohio	Penn	S.Carolina	Tenn	Texas
State Health or Environment Department	65%	62%	68%	45%	69%	67%	43%	71%	75%	76%
Regional EPA office	25%	38%	25%	32%	22%	42%	52%	21%	7%	15%
Environmental Consulting Firms	17%	31%	7%	23%	16%	0%	43%	14%	0%	20%
Information may not have been sought	12%	15%	29%	5%	9%	0%	5%	18%	20%	7%

addition, school personnel seem to want more specific direction than the manual alone can provide and rely, primarily, on state agencies for this assistance - assistance that not all states are prepared to give.

5.3.3 Water Coolers

A clear majority of the respondents say that they have seen EPA's initial list of water coolers that should be tested, repaired or replaced. Table 5-8 summarizes these responses by state. The results indicate that high familiarity with the list is again correlated with state efforts. Those states in which the coordinating agencies disseminated the list generally have higher proportions of districts reporting that they have seen the list.

5.3.4 Testing for Lead in School Drinking Water

Fewer than half of the sampled districts had tested their buildings for lead in the drinking water at the time of the survey. However, approximately two-thirds of those who had not yet tested reported that they were planning to do so within the next twelve months. When these two variables (have tested and plan to test) are combined, the highest proportions of positive responses are in three of the states with strong Lead in School Drinking Water programs: Texas, So. Carolina and New York. Texas and New York also have the highest proportions of districts that have already tested. These results are summarized in Table 5-9 The "plan to test" responses should be cautiously interpreted because there is no guarantee that all the plans will be executed.

The number of districts who had tested by the time of the survey is small; therefore, the statistics for this group are summarized for the sample as a whole rather than by state.

- Over half (57%) of the districts that have tested report that no retesting or corrective actions were necessary.
- Those few districts that have tested and found problems are more likely to consider lead in drinking water a more serious health risk (Q5).
- Having tested is positively correlated with familiarity with both federal and state regulations and recommendations.
- Districts are primarily using their own staff to implement both the tests and any corrective actions.
- Only one respondent reported that the district's testing uncovered water cooler problems.
- Over three-quarters (79%) of the districts say that funds for testing for and correcting lead in drinking water problems have come from or will come from, their general funds.

Table 5-8
Proportion Who Have Seen EPA's List of Lead Lined Water Coolers

Q21: "Have you seen the list published in the spring of 1989 of lead lined water coolers that the U.S. Environmental Protection Agency recommends should be tested, repaired or replaced?"

		Percentage by State								
Factor	All	Colorado	Idaho	Illinois	New York	Ohio	Penn	S.Carolina	Tenn	Texas
No	32.2%	53.8%	22.0%	46.4%	19.2%	62.2%	36.0%	19.4%	40.0%	7.2%
Yes	62.8%	38.5%	75.6%	46.4%	75.0%	31.1%	60.0%	75.0%	60.0%	89.9%
Don't know	4.9%	7.7%	2.4%	7.1%	5.8%	6.7%	4.0%	5.6%	0%	2.9%

Table 5-9
Testing for Lead in Drinking Water

		State								
Factor	All	Colorado	Idaho	Illinois	New York	Ohio	Penn	S.Carolina	Tenn	Texas
Sample size	436	41	41	57	53	47	51	36	31	75
Have tested	46%	48%	35%	23%	63%	35%	58%	50%	13%	70%
Plan to test in next 12 months (of those who have not tested)	65%	68%	77%	44%	61%	61%	63%	94%	60%	90%
Tested or plan to test	77%	80%	78%	54%	84%	72%	82%	92%	52%	96%

The last item is interesting in view of the fact that fully one-fourth (26%) of the respondents commented that EPA should provide financial support for these types of programs, and some indicated further that these programs take funds away from education. Respondents' comments are addressed in more detail in Chapter 7.

5.3.5 Overall Program Evaluation and Comments

Three summary questions, which addressed the relative importance of motivating and helping factors (Q22), impeding factors (Q23) and general comments (Q24), completed the evaluation of the Lead in Drinking Water program.

The relative importance of motivating factors is summarized in Table 5-10. State and federal requirements and recommendations are ranked, overall, as the most important motivating factors. EPA materials and assistance are also important, reflecting the high ratings given to the materials by those who had obtained them. It is interesting to note that only moderate importance is placed on parental, staff and public pressure. Apparently, public pressure has some impact but, given other pressure upon schools, is less important than more direct routes in motivating school districts to act.

Table 5-11 summarizes the mean ratings given to a variety of factors that might be serious impediments to a district's taking action on lead in drinking water problems. Two points are worth noting. First, the factor given the most serious rating is "inadequate information from state agencies" while "inadequate information from the EPA" is not considered serious. This is true even for the states that have disseminated significant amounts of information and have conducted training sessions for school personnel. It appears that, since the states are mandated to set up a program, districts are asking their states to give them much more specific information and guidance on what to do and how to do it. These results, plus comments made in interviews of state agency officials, suggest that the number of available alternatives for both testing and remediation demand more decision-making than the districts believe they either can or want to do.

Secondly, districts in Tennessee, whose responses have generally been incongruous with the state's reported level of effort, rate every factor as a more serious impediment than do the districts in any other state. This is particularly evident with respect to the funding items: inadequate district funds, state funds and inadequate district staff. We recall from Table 3-6 in Section 3, that Tennessee districts have one of the higher proportions of students below the poverty line and the lowest instructional dollars spent per pupil (mean = $40.00) of all nine states. It may be that financial considerations have more influence on Tennessee schools than any communication and training activities undertaken by either EPA or the state. This is somewhat corroborated by correlational analysis, which indicates a small but negative correlation (across the entire sample) between the proportion of students under the poverty line in a district and the district having tested for lead in the drinking water.

Table 5-10
Ratings of Motivating Factors for the Lead in Drinking Water Program

Q22: "How important, if at all, do you think each of the following has been in motivating and helping your district to take action on potential health risks due to lead in school drinking water?" (1 = not important to 5 = very important)

			State								
Factor	Statistic	All	Colorado	Idaho	Illinois	New York	Ohio	Penn	S.Carolina	Tenn	Texas
Sample size	n	436	41	41	57	53	47	51	36	31	72
State requirements & recommendations	mean	3.86	3.78	3.61	2.98	4.34	3.73	3.98	3.88	4.28	4.24
	SE(mean)	*.06*	*.19*	*.21*	*.22*	*.16*	*.20*	*.19*	*.18*	*.17*	*.13*
Federal requirements & recommendations	mean	3.86	3.83	3.84	3.00	4.23	3.65	4.15	4.09	4.00	4.12
	SE(mean)	*.06*	*.19*	*.20*	*.21*	*.15*	*.20*	*.15*	*.19*	*.24*	*.13*
State technical assistance	mean	2.67	3.10	2.64	2.16	2.58	2.89	2.65	2.52	3.56	2.60
	Se(mean)	*.08*	*.28*	*.26*	*.19*	*.22*	*.26*	*.24*	*.31*	*.25*	*.22*
State financial assistance	mean	2.31	2.60	2.10	2.27	2.31	2.80	2.47	1.66	3.15	1.92
	Se(mean)	*.09*	*.31*	*.29*	*.23*	*.24*	*.27*	*.28*	*.24*	*.33*	*.20*
U.S. EPA materials and technical assistance	mean	3.08	3.22	3.66	2.67	3.07	3.05	3.43	3.16	3.21	2.75
	SE(mean)	*.07*	*.23*	*.22*	*.20*	*.19*	*.21*	*.21*	*.25*	*.23*	*.20*
Concerns expressed by the public, media, parents and staff	mean	2.78	2.86	2.34	2.59	3.05	3.10	3.60	2.45	2.95	2.78
	Se(mean)	*.08*	*.27*	*.23*	*.22*	*.24*	*.24*	*.18*	*.25*	*.28*	*.19*

Table 5-11
Ratings of Impeding Factors for the Lead in Drinking Program

Q23: "How serious, if at all, do you think each of the following has been in impeding your district in taking action on lead in drinking water?" (1 = not serious to 5 = very serious)

Issue	Statistic	All	Colorado	Idaho	Illinois	New York	Ohio	Penn	S Carolina	Tenn	Texas
			State								
Sample size	n	436	41	41	57	53	47	51	36	31	72
Inadequate district funds	mean	2.92	2.38	3.23	3.40	2.12	2.82	2.40	2.81	3.96	3.23
	SE(mean)	*.09*	*.26*	*.25*	*.23*	*.21*	*.27*	*.25*	*.29*	*.29*	*.22*
Inadequate state funds	mean	3.02	2.46	3.38	3.50	2.23	3.00	2.34	2.78	3.95	3.43
	SE(mean)	*.09*	*.26*	*.28*	*.25*	*.23*	*.28*	*.25*	*.31*	*.31*	*.22*
Inadequate information from the U.S. EPA	mean	.52	2.61	2.19	2.87	2.14	2.79	2.44	1.84	3.13	2.53
	SE(mean)	*.07*	*.25*	*.18*	*.21*	*.21*	*.23*	*.22*	*.18*	*.31*	*.19*
Inadequate information from state agencies	mean	3.86	3.83	3.84	3.00	4.23	3.65	4.15	4.09	4.00	4.12
	SE(mean)	*.06*	*.19*	*.20*	*.21*	*.15*	*.20*	*.15*	*.18*	*.24*	*.13*
Inadequate expertise in district	mean	2.65	2.44	2.76	3.20	2.11	2.84	2.02	2.78	3.28	2.65
	SE(mean)	*.08*	*.27*	*.24*	*.21*	*.20*	*.25*	*.20*	*.27*	*.31*	*.20*
Inadequate staff to handle extra work	mean	2.88	2.38	3.19	3.11	2.42	2.89	2.14	3.09	3.83	3.22
	SE(mean)	*.08*	*.25*	*.26*	*.22*	*.23*	*.27*	*.22*	*.27*	*.31*	*.20*

Very few respondents chose to add comments about EPA requirements, materials or assistance regarding lead in the drinking water. The most frequent comments were about 1) funds, indicating that these programs are taking funds away from education and addressing the issue of unfunded mandates, and 2) about the need for more clarification of the guidelines, technical assistance and responses to school personnel's questions. Comments are summarized in Table 7-3.

5.4 SUMMARY AND IMPLICATIONS

There is wide diversity among the nine states with respect to their levels of effort in implementing a Lead in School Drinking Water program for the local school districts. Much of this seems to depend on the financial situation in individual state agencies, attitudes toward an unfunded federal mandate with no penalties attached and, at least in part, the interest of key individuals in state agencies. It becomes very apparent that the level of state effort is the key factor affecting the ways in which school districts respond to this type of program.

For the most part, school districts in states that have fully disseminated EPA and other materials, and have conducted training for school personnel, are more responsive than districts in states that have not put forth the same efforts. This is less accurate in Tennessee, where school district finances appear to be more significant than anything either the EPA or the state is doing.

The EPA manual, "Lead in School's Drinking Water," receives relatively high ratings from those respondents who have obtained it. It is viewed as being clear, instructive and complete and is relied upon by the districts who are using it to help them determine their actions. The manual is an important and positive motivational tool. Reactions to the manual's contents, however, do not seem to be the most critical factor affecting district activities. Assuring that districts receive the manual and have adequate training for its use is critical. If states are responsible for disseminating the manual and, for various reasons, they do not, it seems to be unlikely that districts will make much effort to obtain the manual on their own. They rely significantly on their appropriate state agency for information on what they must do. Even states that have been very active in disseminating information and conducting training don't seem to be doing enough to satisfy the local districts' needs for guidance and information.

It is apparent that the appropriate state agency or agencies provide a critical communications link between EPA and local schools for this program. EPA can enhance the effectiveness of programs like Lead in School Drinking Water by increasing its efforts to help state agencies in assisting local school districts. These efforts can include

coordinated information dissemination, targeted training and model programs. While states might appreciate flexibility in program design, EPA can significantly assist them by developing, as a starting point, straightforward, detailed guidelines for preferred model programs. The number of options available for implementing the Lead in School Drinking Water program at the local district level appears, as presented by EPA, to be more confusing than helpful. School administrators are educators not environmental technicians. It doesn't appear that the majority of them would be insulted by a more directive approach on dealing with environmental hazards in their districts and it appears that most states would undertake the effort to develop refined guidelines on an interim voluntary program.

6.0 RADON

6.1 BACKGROUND AND EPA PROGRAM

Radon is a colorless, odorless, tasteless radioactive gas that results from the natural decay of uranium in rocks and soil. Because uranium occurs in small quantities in most rocks and soil, radon is continually released into soil gas, underground water and outdoor air. Relatively high concentrations of radon can occur inside buildings if radon-containing soil gas infiltrates into a building through cracks, building joints or openings around pipes. Recent medical research indicates that high levels of radon act as a carcinogen and that children may be at a greater risk from radon exposure than adults.

6.1.1 EPA Study and Recommendations

In April, 1989 the Environmental Protection Agency released the results of a radon study that was conducted in 130 schools in sixteen states around the country.[1] These study results indicated that 19 percent of the 3,000 rooms tested for radon had levels above the recommended maximum of 4 Pci/L. In addition, 54 percent of these schools had at least one room with levels over 4 Pci/L. and three percent of the rooms tested had levels exceeding 20 Pci/L.

In addition to the school study, the EPA, in cooperation with the states, conducted measurements for radon in thousands of homes throughout the United States.[2] Although the information is not available for all the states included in this study, the following summarizes the information that is available on the percentages of homes with measured radon levels over 4 Pci/L.

State	Percent Homes > 4 Pci/L
Colorado	>25%
Idaho	no information
Illinois	no information
Ohio	>25%

[1] Information on the study done on schools was provided to us by personal communication with Dennis Wagner, Chief, Public Information, Radon Office, US EPA, May 7, 1990.

[2] Information on the study of homes was provided to us by personal communication with Bill O'Neil, Office of Policy Planning and Evaluation, US EPA, April, 1990.

New York	no information
Pennsylvania	>25%
So. Carolina	0 - 10%
Tennessee	15 - 20%
Texas	no information

At the same time that the EPA released the results of the school study to the press (April 1989), the agency also released working, interim recommendations that all schools should measure radon levels in frequently used rooms that are at ground level or below. Recommendations call for testing with either charcoal canisters or alpha track detectors and retesting, over a period of several months, those rooms where elevated levels are found. There is no mandate requiring that this testing be done; it is only recommended.

6.1.2 EPA Materials

Copies of a booklet, "Radon Measurements in Schools--An Interim Report," were disseminated to state radon offices and state education departments along with the information kits provided to the press. Since the press release came before disseminating of these materials to the state agencies, the public was aware of a potential hazard before either state agencies or school districts had the required information. Initially, the EPA did not communicate directly with local school districts about either the issue or their guidelines but relied on the state agencies to contact school districts and disseminate information.

The entire procedure used by EPA to disseminate this information was a cause of some dissatisfaction by state and school district personnel contacted for this study. Releasing information about a potential health hazard in schools before releasing this same information to either state agencies or the schools left the states and the schools unable to respond to parental and public concerns.

The radon guidelines have not yet been finalized. However, subsequent to the school district survey in February 1990, the EPA sent a new publication, "Radon Reduction Techniques in Schools," to National Education Association chapters and parent-teacher organizations. This publication was also made available in information stands in 2,400 supermarkets across the country and has now been mailed to all 42,000 school districts.

6.1.3 Federal Grants

No federal funds were initially available to assist either states or school districts. However, for fiscal year 1990, funds totaling $8.7 million were appropriated for an EPA grant program to the states.

These grants can be used:

- to work directly with schools;
- for training;
- for public awareness campaigns; or
- for a variety of other activities related to radon testing and remediation.

6.1.4 Additional Comments

EPA's mandate from Congress regarding radon in schools is to assess the extent of contamination in the nation's schools and coordinate efforts to address the problem. It is hoped that by providing both information relating to the health risks associated with high levels of radon and guidelines for monitoring and remedying the situation, then state agencies and local school districts will be motivated to take appropriate actions. Activities related to radon testing and remediation are usually relatively inexpensive.

One of the larger obstacles the EPA may be facing in gaining cooperation from school districts is the fact that the guidelines are labeled "An Interim Report." There is evidence that school administrators, following their experiences with asbestos, tend to be concerned about taking actions now and then having to redo everything when new information becomes available. The fact that this program is only a year old makes it difficult to have a clear sense of schools' responses and levels of cooperation thus far.

A few schools with high radon levels are now participating with the EPA in a project to evaluate remediation techniques.

6.2 THE STATE PROGRAMS: RADON GAS

There are three factors that are affecting states' levels of effort relative to measuring for and remedying radon gas in schools.

1. Radon is the newest program of the three included in this study.

2. The announcement of the program followed very quickly after the announcement of the Lead in Drinking Water program and while school districts are still reeling from the expense of the asbestos program.

3. The guidelines are very conspicuously labeled as "interim", which causes both state personnel and school administrators to wonder aloud about the possibilities that the ground rules will change after the agencies and districts have already expended both time and money.

The result of these factors is that, generally, EPA recommendations relating to measuring for radon have, thus far, had the least effect of any of the recommendations or requirements being evaluated in this study.

Radon program activities are summarized, by state, in Table 6-1.

6.2.1 Colorado

The contact agency in Colorado for the Radon program is the Consumer Protection Division, Department of Health. The state has been very active with respect to this program. According to one respondent, the Consumer Protection Division tries to operate with a basic "progressive rather than reactive" philosophy with respect to health protection.

In July 1989, the state's Department of Health adopted regulations that mandate all schools to test for radon. All testing is to be completed by March 1, 1991 but schools that are newly constructed or have undergone recent remodeling or extensive work on heating and air conditioning will have 19 months after the completion of that work to conduct their testing.

The state regulations require that tests be conducted according to the procedures outlined in the EPA's booklet, "Radon Measurements in Schools: An Interim Report". Test results must be kept on file and made available to the division on request. Corrective measures are recommended but not mandated.

The division has sent bound copies of the EPA manual, "Radon Measurements in Schools" to all school districts. In addition, the division has developed and disseminated to the school districts, state guidelines that are intended as an addendum to the EPA interim report Training and additional information are provided on request.

An open training session on several environmental concerns, including radon, was conducted in March 1990 in cooperation with the Colorado Environmental Health Association; all school districts were invited to send a representative to this meeting (at their own expense).

One representative of the Health Department noted that there is a danger in mandating that schools use the procedures recommended in EPA's booklet: if EPA changes course in the future with regard to testing techniques or acceptable levels, school administrators are likely

Table 6-1
Summary of State Radon Programs
(March 1990)

STATE	MANDATE	EPA MATERIALS SENT TO ALL DISTS.	EPA MATERIALS PROVIDED BY REQUEST	TRAINING	GRANT APP	OTHER CONSULTING/ TESTING
COLORADO	X	X		X		X
IDAHO		X			X	
ILLINOIS			X	X	X	X
NEW YORK						
OHIO			X		X	
PENNSYLVANIA		X		X		X
SO CAROLINA						
TENNESSEE			X	X*		X
TEXAS			X			

* EPA materials given to training seminar attendees

to be unhappy that the state mandated them to act at such an early stage in the process. But, at the time of the last interview, the division was very pleased with the progress of the radon program.

6.2.2 Idaho

The contact agency in Idaho for the Radon program is the Department of Health and Welfare. The state has been relatively inactive with respect to this program and report that school administrators have appeared resistant, voicing fears that this "will turn into another asbestos". In April 1989, the department, in cooperation with the Department of Education, disseminated copies of the booklet, "Radon Measurements in Schools" to all school districts along with a list of reliable testing firms. The department has been approved for an EPA grant to test for radon in schools. During the summer of 1990 the department will send a Request for Proposals to contractors who might wish to bid on implementing the testing. Some school districts tested during the past fall and winter but the department has no statistics on this. One respondent, while commenting on the 1989 EPA press release on radon, noted that this kind of information is often released to the press prior to being sent to appropriate state agencies. Consequently, parents "panic" and call their schools who know no more than the parents do. He suggests that it would be more constructive to send the appropriate information to state agencies who can contact school districts prior to notifying the public through the media.

6.2.3 Illinois

The contact agency in Illinois for the Radon program is the Department of Nuclear Safety. The state has been somewhat active with respect to this program. The state legislature appropriated $100,000 for general radon testing and public information for fiscal year 1990.

The Illinois pubic schools are divided into 18 regions. As of February, 1990, the department had presented information on radon testing in schools at six regional seminars. All other regional superintendents have received letters notifying them of the department's availability for this type of training.

Photocopies of the booklet, "Radon Measurements in Schools," are provided to districts on request. As of February 1990, 96 districts (of the 987 total) had requested and received the booklet.

In cooperation with another state agency, the department provided free alphatrack detectors for all of the schools in two counties. The state has applied for an EPA grant to test both homes and schools. The $100,000 state appropriation is categorized as matching funds. The proposal calls for providing alphatrack detectors to all lower income school districts in the first year. If sufficient funding is received, in the third year a random sample of all the schools in the state would be tested.

The agency has been hesitant to press schools to test early, using their own resources, in case federal funds become available at a later date.

6.2.4 New York

The contact agency in New York for the Radon program is the Department of Health working in cooperation with the Department of Education. Because of a difference of opinion between the two departments on the correct approach, the state has been inactive with respect to this program. The Department of Education is very cautious about anything from EPA that is labeled "interim". Many New York schools implemented asbestos abatement under the first set of regulations and then had to duplicate their efforts after the adoption of AHERA.

In April 1989, the Commissioner of Health and the Commissioner of Education issued a joint press release recommending that all school districts except New York City and Long Island test for radon in the fall. Residential testing in the two areas that were excepted had indicated a low potential for radon problems.

State modifications of the EPA guidelines and an extensive workshop for school superintendents, originally planned for the fall of 1989, have been placed "on hold" until the differences between the Health and Education departments can be reconciled. As of February 1990, no materials had been disseminated to school districts. In addition to their concerns about interim guidelines, the Department of Education would like to develop, with the Departments of Health and Energy, a public education program that would proceed along parallel lines with anything transpiring in the schools. The purpose of this would be to alleviate any parental concerns that might develop when schools begin testing for radon

6.2.5 Ohio

The contact agency for the Radon program in Ohio is the Radiological Health Program, Department of Health. The state has been somewhat inactive with respect to this program because of inadequate resources.

Ohio has had no formalized program for radon testing in the schools. No training has been conducted for school personnel and the EPA booklet, "Radon Measurements in the Schools" has been sent to districts only on request. Only the city of Columbus has a program for testing schools. A bill currently in the state legislature will establish licensure procedures for contractors doing radon testing and mitigation.

The State Department of Health has applied for an EPA grant to:

- identify problem areas with respect to radon;
- conduct a public awareness campaign; and
- and test homes and some schools in identified problem areas.

If the state receives the EPA grant the agency will become more active. They report that, without federal funds, they have neither money nor personnel to implement the program. Most questions coming from school districts have dealt with whether or not radon testing is mandatory. In other words, little concern is being indicated about the potential health risk.

6.2.6 Pennsylvania

The contact agency in Pennsylvania for the radon program is the Bureau of Radiation Protection. The state has been active with respect to the Radon program. Radon has long been an issue in Pennsylvania and the state is aware of a cause for concern even though they receive very few calls from parents.

Prior to EPA's announcement of a Radon program, the state of Pennsylvania had tested all schools in a four-county area known as the Reading Prong area. Since that time it has been up to local districts to conduct their own initial screening. When initial screening indicates high levels of radon, the state will provide alphatrack detectors for long-term testing. Bureau personnel will send staff to schools where indicated levels are exceptionally high.

The bureau sent an advisory letter to all school districts in April 1989. This letter recommended testing and was enclosed in a packet containing a copy of the booklet, "Radon Measurements in Schools" and a list of state certified contractors. In order to attain state certification, contractors must meet certain educational requirements, have a specified level of experience and complete an EPA approved course.

The bureau has developed a database on schools. Information includes:

- test results;
- location of buildings;
- who conducted the tests; and
- the type of test.

EPA's newest booklet, "Radon Reductions in Schools" is being sent to all schools where tests indicate high levels of radon.

6.2.7 South Carolina

The contact agency in South Carolina for the Radon program is the Division of Environmental Radiation, Department of Health. The state has been inactive with respect to the Radon program.

Ten thousand homes have been tested throughout the state and elevated radon levels were found in only four percent of these. Consequently, the state sees little reason for concern about health risks from radon and has no plans to develop a testing program for schools.

No materials have been disseminated to school districts and no training has been conducted. The department reported that they had received probably no more than a half dozen calls from schools about radon. In addition, the department notes that it has no funds to do anything about this program.

6.2.8 Tennessee

The contact agency in Tennessee for the Radon program is the Division of Air Pollution Control, Department of Health and Environment. The state has been somewhat active with respect to this program.

Tennessee was one of the states in which the EPA conducted its initial surveys for radon Elevated levels were found in Eastern and Middle Tennessee. Subsequently, the state and EPA offered a three-day course for school districts on testing and mitigating for radon.

The booklet, "Radon Measurements in Schools" has been disseminated only through training courses and workshops. The department has made several presentations to school district maintenance personnel on radon testing; however, these were not well attended. Presentations on radon testing were also made at two regional meetings conducted by the

Department of Education in January 1990 on grant and loan applications for asbestos abatement. A weekly information packet from the Department of Education contains updates and reminders on various environmental issues.

One state agency respondent commented that there will be little response from the schools on radon unless testing is mandated. The respondent went on to say that this non-response does not result from a lack of concern but because local school districts have "too much thrown at them today"; they are both financially overburdened and overworked.

6.2.9 Texas

The contact agency in Texas for the Radon program is the Bureau of Radiation Control, Department of Health. The state has been inactive with respect to this program. There are no funds in the agency's budget to disseminate materials or provide training. Postage to send materials to schools who request it must be taken from other programs. Therefore, the bureau sends the booklet, "Radon Measurements in Schools," only on request and no training has been offered. The Department of Health has applied for an EPA grant to test a sample of homes throughout the state. If the results of this survey indicate high radon levels anywhere in the state, testing schools in those areas might be considered.

The state legislature meets in regular session only every other year and the next regular session begins in January 1991. Consequently, there is no chance for any state appropriation of funds for radon testing before next year.

6.3 RESPONSE FROM THE SCHOOL DISTRICTS

Questions concerning the radon program were included with the questions concerning the lead in drinking water program in the second version of the questionnaire sent to local school districts. As indicated in Chapter 2, four hundred and thirty-six completed responses to this version of the questionnaire were received. Over two-thirds (72%) of the respondents were school district superintendents or assistant superintendents.

It is important to note again that the radon program is the newest of the three programs considered in this report, and information on responses at the school district level is based on questionnaires completed primarily in November and December 1989 (about 80%) and in January and February 1990 (about 20%). As discussed in Chapter 3, both the respondents' perceptions of health risk and expressions of public and staff concerns regarding radon gas in schools are relatively low. Across the whole sample, these ratings fall just behind those for lead in drinking water. Activities in response to the program can

be expected to increase as states continue their activities supporting school district actions and as EPA disseminates additional information such as the "Radon Reduction Techniques in Schools" publication released in February 1990.

6.3.1 Familiarity with Regulations and Guidelines

In Question 25, respondents were asked to rank, on a five-point scale from (1) "not at all familiar" to (5) "very familiar," their level of familiarity with both their state's and the federal regulations and guidelines for testing for and correcting problems with elevated levels of radon gas in school buildings. The sample mean indicates less familiarity with the radon guidelines than for lead in drinking water, as might be expected with a more recently started program (see Table 6-2). The state means indicate that actions by the states make a difference in terms of reported familiarity with the guidelines. Reported familiarity is significantly above the sample mean in Colorado and Pennsylvania, states with the most active programs of the states in this sample (see Section 6.2).

It appears that this higher level of reported familiarity is the result of more than simply sending the EPA materials to the districts. The mean familiarity reported for Idaho is about the same as the sample mean, even though Idaho is the only state in the sample in addition to Pennsylvania and Colorado that reports having sent the materials to all the school districts. Unlike Colorado and Pennsylvania, Idaho does not have an active training program for local school districts regarding testing for and remediating high levels of radon gas. Idaho is participating in the 1990 EPA State Survey Program, and this should yield new information on risk levels in the state.

6.3.2 Receipt and Response to EPA Materials

Before being asked some specific questions about the EPA materials on radon, respondents were asked a general question about information sources they have used to help determine actions regarding radon gas (Question 26). About half of the respondents indicated that they have used materials from EPA (see Table 6-3). State health departments were listed as the second most frequent source. Variation in these responses across the states is largely consistent with the descriptions of the state level efforts. In states with more activity at the state level, respondents indicate more reliance on information from the state. Newspapers and other printed media and workshops or seminars were also listed by one-fourth to one-fifth of the respondents as sources of useful information.

Table 6-2
Reported Level of Familiarity with State & Federal Regulations and Guidelines Concerning Radon Gas

Q25: "How familiar are you with state and federal regulations and guidelines for testing for and correcting the presence of radon gas?"
(1 = not at all familiar to 5 = very familiar)

		State									
Issue	Statistic	All	Colorado	Idaho	Illinois	New York	Ohio	Penn	S.Carolina	Tenn	Texas
Sample size	n	436	41	41	57	53	47	51	36	31	72
State regulations and guidelines	Mean	2.62	3.28	2.44	2.53	2.78	2.54	3:29	2.03	2.58	2.19
	SE(mean)	*.06*	*.18*	*.18*	*.15*	*.16*	*.17*	*.16*	*.18*	*.21*	*.13*
Federal regulations and guidelines	Mean	2.61	3.35	2.66	2.46	2.50	2.50	3.24	2.06	2.57	2.26
	SE(mean)	*.06*	*.17*	*.17*	*.15*	*.16*	*.16*	*.16*	*.18*	*.21*	*.14*

Table 6-3
Sources of Information Determining Actions Related to Radon Gas

Q26: "Which of the following has your district used to help determine actions on testing for and correcting radon gas problems?" (more than one may apply)

	Percentage of Respondents									
Source	All	Colorado	Idaho	Illinois	New York	Ohio	Penn	S Carolina	Tenn	Texas
Sample size	436	41	41	57	53	47	51	36	31	72
Printed materials from the U.S. EPA	52%	63%	66%	54%	40%	47%	65%	42%	55%	40%
Printed materials from the state health dept.	41%	61%	32%	44%	42%	34%	53%	33%	55%	25%
Newspapers and other printed media	26%	39%	29%	35%	21%	32%	47%	14%	10%	7%
Workshops or seminars	20%	39%	10%	12%	32%	15%	33%	11%	42%	4%
No information has been obtained	25%	12%	20%	18%	17%	26%	14%	47%	23%	46%

A surprisingly high percentage (one-fourth) of respondents said they had obtained no information regarding radon gas, and nearly half the respondents from South Carolina and Texas said they had obtained no information. These two states are putting little or no effort into reaching the school districts on this issue and these responses underline the importance of state level involvement in this program in terms of getting the information to the schools. Texas has not yet participated in EPA's State Survey Program and available information suggests risks in South Carolina may be small. These facts may discourage state agencies and local districts from taking action.

Just over one-fourth of the respondents report having received the EPA report, "Radon Measurements in the Schools" (Question 32). About one-half reported that they had not received the report, and just under one-fourth said they did not know if they had received the report (see Table 6-4). The percentage of respondents who report having received the report ranges from a low of about twelve percent in Ohio, where little is being done at the state level, to a high of fifty-four percent in Colorado, where the state is very active in providing information and training for local school districts regarding radon gas.

About one-third of the sample reports that they have or will receive the report from a state agency. Only eight percent report have used or are planning to use the Government Printing Office. Almost twice as many respondents (40%) said they were not aware of this report as gave a similar answer regarding the "Lead in School Drinking Water" manual. More than half of the respondents in three of the six states in the sample that are sending the report to schools only on request said that they were not aware of this report. Less than thirty percent of the respondents report no awareness of this report in the three states that report having sent it to all school districts. Awareness of the report in Tennessee, which has an active training program through which the EPA materials are distributed to all attendees, is comparable to that reported in the three states that have sent the report to every district.

Only eight percent of the sample reports having no plans to obtain this report. This suggests that only a small percentage of districts willingly or intentionally ignore the availability of information from EPA on this topic. This percentage is comparable to that obtained for a similar question regarding the "Lead in School Drinking Water" manual.

Respondents who had obtained the "Radon Measurements in Schools" report were asked to use a five-point scale (1 being "not at all" to 5 being "very") to rate the degree to which they found the report (1) clear and understandable, (2) instructive and informative, and (3) complete. The mean ratings for all three characteristics were 3.8, suggesting that the majority of respondents found the report relatively clear, informative and complete (see Table 6-5). These are similar to the ratings given for the "Lead in School Drinking Water" manual.

Table 6-4
Where Districts are Obtaining the Report "Radon Measurements in Schools"

Q32: "From where, if at all, have you obtained, or will you obtain, the report "Radon Measurements in School"?" (more than one many apply)

	Percentage of Respondents									
Where	All	Colorado	Idaho	Illinois	New York	Ohio	Penn	S Carolina	Tenn	Texas
Sample size	436	41	41	57	53	47	51	36	31	72
Government Printing office	8%	5%	7%	12%	4%	4%	16%	11%	10%	3%
State Department of Education or Department of Health	33%	43%	37%	23%	36%	26%	41%	33%	55%	22%
From the Regional EPA or Federal EPA offices	17%	23%	17%	16%	13%	11%	29%	14%	23%	11%
Not aware of this report	40%	28%	24%	51%	32%	60%	29%	44%	23%	54%
No current plans to obtain this report	8%	10%	7%	14%	6%	11%	6%	3%	3%	7%
Q33. Have you received the report?										
No	49.8%	28.2%	35.0%	70.2%	49.0%	60.5%	41.2%	61.1%	36.7%	57.6%
Yes	27.3%	53.8%	45.0%	15.8%	20.4%	11.6%	35.3%	22.2%	36.7%	15.2%
Don't know	23.0%	17.9%	20.0%	14.0%	30.6%	27.9%	23.5%	16.7%	26.7%	27.3%

Table 6-5
Report's Effect on Actions or Plans Concerning Testing for Radon

Q35: "Did the report affect your district's actions or plans regarding testing for radon?"

Response	Number of Respondents	Percentage of Respondents	Mean Score of Report For**		
			Clarity	Information	Completeness
No	40	36 7	3.53 (0.14)	3.50 (0.15)	3.63 (0.15)
Yes, somewhat	42	38 5	3 82 (0.12)	3.78 (0.13)	3.71 (0.16)
Yes, definitely	27	24.8	4 23 (0.14)	4.28 (0.14)	4.04 (0.20)
All respondents*	109		3.81 (0.08)	3.79 (0.08)	3 77 (0.09)

* Respondents (about 25% of the sample) who said they had received the report.
** Rated on a scale of 1 = not to 5 = very. Standard error of mean in parentheses.

Almost two-thirds of those respondents who reported having received the report said that it had at least some effect on their district's actions or plans regarding testing for radon gas (see Table 6-5). These responses are very similar to those obtained for the same question regarding the "Lead in School's Drinking Water" manual. Mean ratings for clarity, information, and completeness were positively correlated with the degree of effect of the report on the district's actions or plans.

Question 36 asked respondents who had received the EPA report on radon where they might have sought guidance regarding potential radon gas problems if the EPA report had not been available. More than half of these respondents said they would have sought guidance from their state's departments of health or environment (see Table 6-6). A significant but much smaller share of respondents indicated they would have sought guidance from regional EPA offices and/or from private consulting firms.

6.3.3 Testing for Radon Gas in School Buildings

Fifty percent of the respondents reported that they had tested or planned to test for radon gas in the next 12 months (Table 6-7). The highest percentages of respondents reporting testing, either planned or completed, were in Colorado (83%) and Pennsylvania (76%), states with the most active state programs and where evidence of high levels of radon gas in some homes has been found. These two states also had the highest percentages of districts reporting some radon testing completed. The percentages reporting testing, completed or planned, were significantly below the sample mean in New York, South Carolina, Tennessee, and Texas. Tennessee is the only state of the four with an active state program at the time of the survey. Texas has not yet participated in EPA's State Survey Program, information for South Carolina suggests small risks and New York's program is at an impasse. Testing efforts, including plans to test, seem related to availability and severity of risk information and to the level of state programs.

Less than one-fifth (18%) of the sample had completed any testing for radon gas at the time of the survey. Of those who had conducted tests, a little more than half (58%) reported that no retesting or corrective actions were necessary. About thirty percent reported that retesting was necessary at some sites and about ten percent reported that corrective actions were necessary. These results should be treated as preliminary because most of the districts were just beginning the testing process and the sample size was small for those whose findings were complete. For this reason we do not report the findings by state. The percentage reporting that no retesting or corrective actions were necessary was similar to the sample mean in most of the states, but was higher than the sample mean in Idaho, Illinois, and South Carolina (suggesting or reflecting possibly lower radon levels in these states).

Table 6-6
Alternative Sources of Information Concerning Radon if the Radon Report Had Not Been Available?

Q36: "If the report "Radon Measurements in Schools" had not been available, where would your district have sought guidance on testing for and correcting radon gas problems?" (more than one may apply)

	Percentage of Respondents									
Source	All	Colorado	Idaho	Illinois	New York	Ohio	Penn	S.Carolina	Tenn	Texas
Sample size*	114	21	18	9	10	5	18	8	11	10
State Health or Environment Department	54%	77%	42%	44%	64%	56%	50%	75%	50%	44%
Regional EPA office	38%	41%	32%	44%	50%	44%	67%	25%	25%	19%
Environmental consulting firms	27%	41%	16%	22%	29%	0%	67%	38%	0%	13%
Information may not have been sought	8%	0%	26%	11%	0%	0%	0%	13%	8%	6%

* Respondents who have received the radon report.

Table 6-7
Radon Testing

	Percentage of Respondents									
ource	All	Colorado	Idaho	Illinois	New York	Ohio	Penn	S Carolina	Tenn	Texas
ample size	436	41	41	57	53	47	51	36	31	72
Have tested	18%	34%	12%	18%	20%	22%	37%	6%	7%	7%
Plan to test in next 12 months (of those who have not tested)	50%	91%	56%	56%	37%	41%	76%	46%	29%	33%
Total have tested or plan to test	50%	83%	56%	56%	40%	48%	76%	42%	26%	30%

About forty-five percent of the respondents said that private contractors had been or would be hired to conduct the radon testing. About thirty-five percent said that district staff were doing the testing. About thirty-five percent said that private contractors would do the corrective action and about thirty-five percent said that district staff would do the corrective action. Most of the remainder of the respondents said they did not know who would do the testing or the corrective action. Also of interest is that most respondents (81%) said that money for the testing and the corrective action for radon gas would come from the school district's general funds.

Correlation analysis revealed several factors significantly related to whether or not the school district had tested or had plans to test for radon gas in the next twelve months. Factors associated with a positive response concerning testing included:

- reported familiarity with state and federal regulations and guidelines (Q25)
- level of concern expressed by parents, students, faculty and staff about radon (Q4)
- receipt by the district of the EPA report, "Radon Measurements in School" (Q33)
- identification of printed material from EPA as helpful in determining actions regarding radon (Q26)
- identification of workshops or seminars as helpful in determining actions regarding radon (Q26)

The correlation analysis also revealed that districts with a higher percentage of students living below the poverty level were significantly less likely to have tested or to have plans to test for radon gas in the next 12 months. Higher instructional materials dollars per student (IDP) was associated with higher rates of testing and planned testing, although the correlation was not as great as was the negative correlation with poverty.

6.3.4 Motivating and Impeding Factors Regarding the Radon Program

The evaluation of the radon program was completed with two summary questions dealing with the importance of selected potential motivating and helping factors (Q37), and the importance of selected potential impeding factors (Q38).

The ratings for the potential motivating and helping factors are summarized in Table 6-8. Overall, the most important motivating factors appear to be the state and federal requirements and recommendations. State and federal level requirements and recommendations are rated similarly across the full sample and across most of the states individually. One exception is Idaho, where the state requirements and recommendations are rated lower than the sample mean and lower than federal requirements and recommendations are rated. The highest ratings for state and federal requirements and recommendations were given in states with the most active programs: Colorado, Pennsylvania, and Tennessee.

Concern expressed by the public, media, parents and staff was the next most important motivating factor. The ratings for this factor varied considerably across the states, with the highest rating in Pennsylvania where the radon problem was first identified and publicized.

EPA materials and technical assistance were rated similarly to the public concern for the sample as a whole. The lowest ratings for EPA materials and technical assistance were given in South Carolina and Texas, where the states are doing little to disseminate the EPA materials to the districts or to publicize the problem. State technical assistance was generally rated slightly lower in importance than EPA technical assistance.

Correlations between the ratings for the potential motivating factors and whether or not the district had tested or planned to test for radon in the next twelve months revealed relationships similar to those identified in the previous section. A higher rating for federal and state (especially federal) requirements and recommendations was significantly associated with a positive response concerning testing. A higher rating for public concern as a motivating factor was also related to a positive response regarding testing, especially for testing already done.

Financial constraints appear to be the most serious of the potential factors impeding the districts from taking action on radon gas (Table 6-9). Across the whole sample the order of importance of financial-related impediments, with most serious first, was inadequate state funds, inadequate district funds, inadequate staff in the district, and inadequate expertise in the district. Inadequate information from the states and from EPA were rated similarly and as somewhat less serious than the other four factors. It is of interest that the financial constraints were rated as serious impediments well above the sample mean by respondents from Tennessee. This actual or perceived financial constraint might explain why there seems to be little being done in terms of radon testing and corrective actions by the districts in Tennessee, even though the state has been active in getting information about the problem to the districts. (Note that the average IDP in Tennessee is far below the other states and may reflect funding problems in Tennessee districts.)

Table 6-8
Rating of Motivating Factors for the Radon Program

Q37: "How important, if at all, do you think each of the following has been in motivating and helping your district to take action on potential health risks due to radon gas?" (1 = not important to 5 = very important)

Factor	Statistic	All	Colorado	Idaho	Illinois	New York	Ohio	Penn	S.Carolina	Tenn	Texas
							State				
Sample size	n	436	41	41	57	53	47	51	36	31	72
State requirements & recommendations	mean	3.33	3.78	2.84	2.72	3.76	3.50	3.91	2.63	3.85	3.00
	SE(mean)	*.08*	*.18*	*.25*	*.21*	*.22*	*.24*	*.17*	*.32*	*.22*	*.25*
Federal requirements and recommendations	mean	3.32	3.68	3.37	2.70	3.50	3.38	3.80	2.85	3.72	3.10
	SE(mean)	*.07*	*.17*	*.23*	*.21*	*.22*	*.22*	*.17*	*.31*	*.23*	*.23*
State technical assistance	mean	2.46	2.47	2.52	2.02	2.31	2.68	2.84	1.86	3.39	2.50
	SE(mean)	*.08*	*.23*	*.27*	*.17*	*.24*	*.29*	*.23*	*.30*	*.26*	*.25*
State financial assistance	mean	2.30	2.19	2.30	2.00	2.22	2.69	2.48	1.65	3.14	2.25
	SE(mean)	*.09*	*.28*	*.30*	*.19*	*.26*	*.28*	*.28*	*.26*	*.32*	*.26*
U S EPA materials and technical assistance	mean	2.75	3.06	3.21	2.45	2.71	2.82	3.16	2.21	3.30	2.03
	SE(mean)	*.08*	*.23*	*.27*	*.20*	*.23*	*.25*	*.22*	*.26*	*.27*	*.20*
Concerns expressed by the public, media, parents and staff	mean	2.83	2.97	2.17	2.79	2.83	3.00	3.84	2.15	3.00	2.44
	SE(mean)	*.08*	*.26*	*.21*	*.22*	*.25*	*.23*	*.17*	*.31*	*.30*	*.27*

Table 6-9
Rating of Impeding Factors for the Radon Program

Q38: "How serious, if at all, do you think each of the following has been in impeding your district in taking action on radon gas?" (1 = not serious to 5 = very serious)

Factor	Statistic	All	Colorado	Idaho	Illinois	New York	Ohio	Penn	S.Carolina	Tenn	Texas
							State				
Sample size	n	436	41	41	57	53	47	51	36	31	72
Inadequate district funds	mean	3.18	2.89	3.28	3.27	2.33	2.92	2.69	3.19	4.48	3.72
	SE(mean)	*.09*	*.27*	*.25*	*.21*	*.26*	*.27*	*.23*	*.34*	*.16*	*.24*
Inadequate state funds	mean	3.26	2.84	3.45	3.33	2.39	3.17	2.78	3.38	4.56	3.61
	SE(mean)	*.09*	*.26*	*.26*	*.23*	*.27*	*.27*	*.25*	*.35*	*.15*	*.24*
Inadequate information from the U.S. EPA	mean	2.84	2.58	2.35	2.98	2.57	3.03	2.74	2.89	2.73	3.40
	SE(mean)	*.08*	*.21*	*.21*	*.19*	*.24*	*.25*	*.21*	*.25*	*.26*	*.24*
Inadequate information from state	mean	2.92	2.63	2.69	2.96	2.81	3.22	2.79	2.89	2.45	3.43
	SE(mean)	*.08*	*.25*	*.22*	*.20*	*.25*	*.23*	*.21*	*.29*	*.24*	*.23*
Inadequate expertise in district	mean	3.00	2.45	3.14	3.22	2.38	3.22	2.60	3.26	3.16	3.52
	SE(mean)	*.09*	*.26*	*.26*	*.22*	*.25*	*.28*	*.22*	*.31*	*.27*	*.24*
Inadequate staff to handle extra work	mean	3.06	2.56	3.38	2.98	2.40	2.97	2.63	3.46	3.91	3.61
	SE(mean)	*.09*	*.27*	*.24*	*.22*	*.25*	*.27*	*.24*	*.31*	*.26*	*.26*

Correlation analysis suggests that the respondents who report having received the EPA report "Radon Measurements in Schools" were less likely to say that inadequate information from the EPA or the state was a serious impediment to taking action on radon. Those who had received the report were also less likely to say that inadequate expertise in the district was a serious impediment. Correlation analysis also suggests that those who have tested or plan to test for radon were less likely to say that inadequate information from the state or federal agencies was a serious impediment.

6.4 SUMMARY AND IMPLICATIONS

The radon program had not been underway for very long when this survey was conducted and the results may therefore not be representative of the final response to the program. Some states included in the sample were still in the process of developing their programs for assisting local school districts on this issue, and EPA has distributed additional materials on radon since the survey was completed. Nonetheless, the results of the school district survey and the interviews with state personnel provide some useful information with which to evaluate the effectiveness of the radon program.

It appears that the EPA report, "Radon Measurements in Schools," has been useful for school districts who have received it. Respondents who have received it give it fairly high marks for clarity, information, and completeness, and a large share say that it has affected their actions regarding radon gas. However, it also appears that the districts are more likely to have obtained the report if their state agencies have been actively distributing it. A significant share of respondents in states that are not actively distributing the report do not even know that it exists.

As with the lead in drinking water program, it appears that although the EPA materials are well received and useful, they are not alone sufficient in spurring a high percentage of districts to test for radon gas. It appears that state level follow-up with seminars, workshops, and additional guidelines and recommendations are needed to obtain a high level of response from the districts. Idaho provides an interesting test case for this conclusion. State agencies in Idaho have distributed the EPA materials to all school districts but have done little else to assist the schools. Reported rates of testing for radon by school districts in Idaho are similar to the sample means. In Colorado and Pennsylvania, states that have also distributed the EPA materials to all school districts and have followed-up with active state programs of workshops and training, rates of testing are well above the sample means; although the availability of information that high radon levels occur in these two states may also be an important motivational factor for the schools.

Expressed concern by the public and district staff regarding radon gas seems to be a factor in motivating action by the schools. This seems especially true for states where high levels of radon have been measured in a significant share of homes and the problem has had significant publicity. States in the sample that fit this description are Pennsylvania and Colorado.

An important factor motivating state agencies appears to be the availability of risk information and the degree of risk. In cases where there is no EPA risk information, state actions are lacking, and whenever states are less active, school districts tend to be less active. Where EPA or state risk assessments suggest lower risks, activity is also relatively less than in states where quantified risks are larger. In short, EPA can stimulate appropriate action in states by conducting risk assessments and providing that information to the state agencies and public. Without this information an old axiom seems to hold, "Ignorance is bliss" (or as stated in Koines, Cummins and Rowe, 1990, "Knowledge leads to consensus" about what actions to take).

As with lead in drinking water, financial constraints come through as significant impediments to the districts when it comes to taking action on radon gas. We see again that there is a low rate of testing by schools in Tennessee even though the state has a fairly active program providing information, training, and recommendations to the schools. Financial constraints were more likely to be given as serious impediments by school districts in Tennessee and we see that schools with lower instructional materials budgets and with a higher percentage of students living in poverty are less likely to be testing for radon gas. School districts in Tennessee have the lowest budgets for instructional materials and have a higher than average percentage of students living in poverty for the states in this sample.

7.0 COMPARISON ACROSS PROGRAMS AND CONCLUSIONS

This chapter presents the responses to the final questions in the mail survey concerning all three of the programs, as well as summaries of the comments offered by the mail respondents. Overall conclusions about the effectiveness of these three programs are then presented.

7.1 COMPLIANCE DIFFICULTY AND ADDITIONAL COMMENTS FOR ALL THREE PROGRAMS

In both versions of the mail questionnaire respondents were asked to rate the overall difficulty of complying with EPA regulations and/or guidelines for each of the three programs. Respondents were also asked to offer additional comments regarding the EPA programs at several different points in both versions of the questionnaire.

Compliance Difficulty

Respondents to both versions of the questionnaire were asked to rate on a five-point scale how easy or difficult it has been for their districts to comply with the EPA regulations or guidelines for each of the programs (Table 7-1). The mean responses across all the states indicate that school districts have found the asbestos program significantly more difficult than either the lead in drinking water program or the radon gas program. The mean rating for asbestos was at four on the scale, while for the latter two programs the means were just below the mid-point between "easy" and "difficult".

There are several likely reasons why the asbestos programs has been more difficult for the school districts.

- Many of the district's actions are mandated under the asbestos program, while with lead and radon the districts have more discretion about what they do.
- Asbestos abatement typically requires more effort and much more expense than abatement for lead or radon.
- The asbestos program has been going longer and has had some changes along the way.

Respondents also indicated that complying with regulations or recommendations on underground storage tanks (UST) has been fairly difficult. This may relate to the fact that EPA has no program or materials on UST that are designed specifically for schools.

Table 7-1
Rating of Overall Difficulty in Complying with U.S. EPA Regulations

"Overall, how easy or how difficult has it been for your district to comply with U.S. Environmental Protection Agency regulations and/or guidelines for the following issues?" (Lead/Radon Q40 and Asbestos Q33) (1 = very easy to 5 = very difficult)

			State								
Issue	Statistic	All	Colorado	Idaho	Illinois	New York	Ohio	Penn	S.Carolina	Tenn	Texas
Sample size	n	810	85	41	116	104	105	100	36	68	146
Lead in drinking water	mean	2.72	2.50	3.03	2.51	2.42	2.95	2.38	2.89	3.38	2.82
	SE(mean)	*.05*	*.15*	*.24*	*.15*	*.13*	*.15*	*.13*	*.27*	*.20*	*.11*
Radon Gas	mean	2.89	2.85	3.38	2.64	2.71	3.29	2.49	3.31	3.39	2.78
	SE(mean)	*.06*	*.15*	*.25*	*.15*	*.17*	*.15*	*.14*	*.36*	*.21*	*.15*
Asbestos	mean	4.04	3.95	4.32	4.08	4.16	4.09	3.76	4.60	4.16	3.78
	SE(mean)	*.04*	*.13*	*.15*	*.11*	*.10*	*.12*	*.14*	*.15*	*.15*	*.12*
Underground storage tanks	mean	3.38	3.20	4.03	3.21	3.55	3.74	3.05	3.93	3.35	3.22
	SE(mean)	*.05*	*.16*	*.22*	*.16*	*.13*	*.13*	*.15*	*.27*	*.21*	*.13*

Additional Comments

Respondents who said they found the EPA materials incomplete were asked to comment about what else would have been useful. About 12 percent of the sample made one or more comments in response to this question in each version of the questionnaire (Table 7-2). For the lead in drinking water and the radon gas manuals, the primary comment was that the schools would have liked to have had the information before it was announced to the public. This complaint relates more to the program in general than to the manuals themselves. For asbestos, some respondents would have preferred more detailed information, particularly on expected costs and selection of qualified contractors.

After the questions asking respondents to evaluate the EPA materials for each program, respondents were asked if they had any additional comments about the EPA requirements or materials and technical assistance for that program. About 20 percent of the sample made one or more comments about each of the programs in response to this question (Table 7-3). The most frequent comment was that the districts would like financial assistance with regard to these programs. Comments on the materials and technical assistance focused primarily on requests for clearer guidelines and better response to questions.

At the end of each version of the questionnaire, respondents were asked open-ended questions about whether the EPA is currently helping them deal with environmental risks and what else EPA might do to help them. About 65 percent of the sample answered the first question and about one-third of the responses indicated either that the EPA is not helping or that the respondent did not know if EPA was helping (Table 7-4). About another third of the comments indicated that EPA has been helpful, especially with publications; however, some of these comments were qualified with requests for less technical information. The frequencies of these comments were fairly similar for the two survey versions.

About 60 percent of the sample made one or more comments about what more EPA could be doing to help school districts deal with environmental risks (Table 7-5). The most frequent comments were EPA should provide more financial support and other direct assistance, such as on-site testing, for these programs. Requests for simpler information and clearer guidelines were also fairly frequent, especially for the lead/radon version of the questionnaire. Several different comments also suggested that a portion of respondents felt that these health risks are not as serious as the EPA programs seem to indicate.

Table 7-2
Most Frequent Comments About What Else Would Have Been Useful, If Respondent Found EPA Materials Incomplete*

Comment Frequencies By Survey Version			Specific Comment (Paraphrased)
Asbestos	Lead	Radon	
48	47	43	Total number of comments given.**
374	436	436	Total number of respondents for each version.
0	33	34	Get information to schools before announcing to public.
17	8	3	Provide more detail/more facts.
11	1	0	Provide more workshops/trainings/public meetings.
9	0	0	Provide information on how much it will cost.
7	2	1	Provide information on how to get help, such as a list c qualified contractors or consumer product information.

* Asbestos Q27, Lead Q18 and Radon Q34. This list includes all comments (paraphrased) given by at least 5 respondents in one or both of the surveys.

** About 12 percent of the sample gave one or more comments in response to this question in each version of the questionnaire.

Table 7-3
Most Frequent Additional Comments About EPA Requirements or Materials and Technical Assistance for This Program*

Comment Frequencies By Survey Version			Specific Comment (Paraphrased)
Asbestos	Lead	Radon	
99	126	106	Total number of comments given.**
374	436	436	Total number of respondents for each version.
14	13	16	Need money. This program is diverting money from education.
10	12	8	Clarify guidelines for this program.
5	8	12	Need more technical assistance, response to question, etc.
12	3	3	The problem is exaggerated, regulations are too demanding.
10	3	0	Need better communication between EPA and related state agencies.
6	7	4	Don't mandate without providing funds.
1	5	3	This environmental risk is not a problem/not as bad as other things.
2	5	3	We have done nothing on this program.

* Asbestos Q32, Lead Q24 and Radon Q39. This list includes all comments (paraphrased) given by at least 5 respondents in one or both of the surveys.

** About 20 percent of the sample gave one or more comments in response to this question in each version of the questionnaire.

Table 7-4
Most Frequent Comments About How EPA is Helping School Districts Deal with Potential Environmental Risks*

Comment Frequencies By Survey Version		Specific Comment (Paraphrased)
Asbestos	Lead/Radon	
266	305	Total number of comments given.**
374	436	Total number of respondents for each version.
109	126	None/very little or don't know how EPA is helping.
59	48	EPA is very helpful and there when needed.
31	42	EPA is a little helpful, primarily with publications.
34	38	EPA is somewhat helpful, but need clearer, less technical information.
1	9	Information/materials/telephone assistance by EPA h: been helpful.
8	8	General negative comment about EPA.
0	9	Good radon program.
7	7	General comment about lack of funding resources.

* Asbestos Q34 and Lead/Radon Q41. This list includes all comments (paraphrased) given by at least 5 respondents in one or both of the surveys.

** About 65 percent of the sample gave one or more comments in response to this question in each version of the questionnaire.

Table 7-5
Most Frequent Comments About What More the EPA Could Be Doing to Help School Districts Deal With Possible Environmental Risks*

Comment Frequency By Survey Version		Specific Comment (Paraphrased)
Asbestos	Lead/Radon	
395	448	Total number of comments given**
374	436	Total number of respondents for each version
I. EPA should provide more financial support		
81	112	EPA should provide financial support for these programs; they are taking funds away from education.
24	33	EPA should do/pay for the work required.
15	17	EPA should provide more on-site help, testing, or other direct assistance.
5	4	EPA should provide more training and more funding.
II. Complaints about the requirements and/or guidelines		
24	50	EPA should provide better/simpler information and establish clearer guidelines.
18	16	Abolish EPA, etc.
12	15	Don't keep changing requirements/guidelines.
9	12	EPA should coordinate guidelines with state and local agencies.
7	11	EPA should do less enforcement and give more help.
7	7	Make less/easier regulations.
3	8	EPA should do less/has not helped.
4	5	Asbestos drained/wasted funds.
3	5	Need more muscle in the regulations.

Table 7-5 (continued)

III. EPA's programs/actions exaggerate the risks		
23	23	EPA should take a more realistic/common sense approach.
21	13	EPA should provide information about the true health risks; problem not that serious.
19	4	These programs are not needed; there is no real risk; EPA has overreacted.
5	4	EPA should do more/better publicity and stop scaring people
IV. EPA should provide better or different information		
21	16	EPA should provide a newsletter or other periodic updates on programs and requirements.
14	7	EPA should provide more/better training.
10	5	EPA should provide more information about who is qualified to do the work and what it should cost.
V. EPA should improve communication with the schools and with the public		
20	13	More regional meetings/workshops/public meetings would be helpful.
17	10	EPA should conduct better public relations with the schools and listen to feedback from the schools.
9	12	EPA should be more responsive and supportive.
VI. EPA is doing a good job		
8	3	General positive comments about EPA.
2	9	EPA has really helped.
2	8	EPA has provided good materials and information.

* Asbestos Q35 and Q36; Lead/Radon Q42 and Q43. Includes all comments (paraphrased) given by at least 5 respondents in one or both of the surveys.

** About 60% of the sample in each survey gave one or more comments in response to these questions.

7.2 COMPARISONS OF LOCAL SCHOOL DISTRICT SURVEY RESPONSES ACROSS PROGRAMS

Table 7-6 provides a comparison of similar program elements and evaluation ratings used in the local school district surveys of the asbestos, lead in drinking water and radon program evaluations.[1] Most prominent is the effect of a program's age. The familiarity with regulations and recommendations, receipt of EPA materials, the effect of the materials, and the percent testing for the identified potential problem all uniformly increase with the age of the program. Enhancing this effect are the regulations mandating specific actions with regard to asbestos as compared to interim recommendations for lead and radon that do not require any specific actions. As a result, there has been extensive penetration of EPA materials and extensive testing for asbestos but only limited penetration of EPA materials and limited testing for radon.

When we compare the percentages of districts that have tested for lead and radon to the reported receipt of specific EPA manuals, we see that a large share of districts are at least testing once they have the information. This seems to be a fairly high response to programs that are voluntary.

The penetration of EPA materials is highly correlated with familiarity with regulations and recommendations, the perception of risk and testing for the given environmental concern. The ratings of the EPA materials vary little across the programs, although the materials on asbestos are rated somewhat lower than the others. However, the effect of the EPA asbestos materials is rated higher than the effect of materials for the other programs. This probably reflects the required, versus recommended, status of testing and remediation actions, which force school districts to rely on EPA materials. Overall, EPA materials and assistance are seen as moderately important in motivating and helping local school districts for each program and inadequate information from the EPA is not seen as a serious impediment to local school districts in taking action on these programs. These tendencies are less pronounced for the newer radon program.

[1] Cross program comparisons should be taken as broadly indicative of program differences, rather than as exact statistical comparisons due to lead and radon data being collected in a different survey version from the asbestos results. Nevertheless, the results for identical questions (such as Q4 and Q5) are quite similar across the survey versions.

Table 7-6
Comparison Across the Programs

		Asbestos	Lead in Drinking Water	Radon
Age of Program		8 yrs.	1 yr.	less than 1 yr.
Concern by Parents, Staff, etc. (1=none ... 4=great)		2.2	1.8	1.7
Perceived Health Risk (1=none ... 5=great)		1.8	1.6	1.6
Reported Use of EPA Materials		85%	70%	52%
Reported Use of State Materials		77%	64%	41%
Familiarity with the Regulations/Guidelines. (1=none ... 5=very)		4.2	3.1	2.6
Recall Receiving Specific EPA Manuals		80%	49%	27%
Rating of EPA Materials: (1=not ... 5=very)	Clear	3.5	3.8	3.8
	Instructive	3.6	3.9	3.8
	Complete	3.7	3.9	3.8
Materials Affect Action? (1=none .. 2=somewhat .. 3=definitely)		2.1	2.0	1.9
Overall Ease or Difficulty of Compliance (1=easy ... 5=difficult)		4.0	2.7	2.9
Have Tested for Problem		NA	46%	18%
Asbestos: Submitted Plan		98%	NA	NA
Need for Retesting and/or Remediation (of those who have tested)		97%	43%	42%

7.3 SUMMARY CONCLUSIONS

School Receptivity

Overall, public school districts are a concerned and receptive audience to the messages from the U.S. EPA about potential health risks facing school children. This is evidenced by the fairly substantial response to EPA's relatively new, and voluntary, lead in school drinking water and radon programs. Nonetheless, uncertainty does seem to exist with respect to the issues or the evidence of risk to students. These uncertainties are compounded by lack of training on environmental issues and risk management strategies, as well as concerns about program costs vis-a-vis educational budgets. This sometimes leads to cautious approaches and an apparent desire to turn to state, regional and federal officials, in that order, for guidance and assistance. A primary question, then, is: "How can EPA enhance its efforts to support entities like public schools in identifying and reducing environmental health risks?"

EPA Materials

The initial research question concerned one of EPA's primary efforts: program materials development. These materials typically have been in the form of informational pamphlets and instructional manuals. Overall, these materials are well received. They are seen as fairly clear, informative and complete. The materials seem to be helping local school districts understand the problems and the regulations or recommendations for dealing with them. However, these results are also highly correlated with strong state programs for information dissemination, training and assistance.

Several thoughts about improving the EPA materials consistently arose through both the state interviews and the local school district surveys. These included:

1. The need for more follow-up training to help school administrators decide how to implement the guidelines in the EPA materials (See Overall Strategy comments below); and

2. The need for a simpler "model program" that both states and local school districts can use for guidance. Because the lead and radon programs are largely voluntary, EPA has chosen not to suggest preferred approaches and instead has provided several acceptable alternatives for testing and remediation. However, some local school district officials complain of having insufficient expertise and of being unable to adequately choose among the alternatives. In other words, the unintended result of this strategy is to sometimes exacerbate the confusion and frustration at the state and local levels. This is consistent with findings of Johnson and Fisher (1989) who report

fewer demands for additional information when information is presented in a "command" mode (do this), rather than as a discussion of options with pros and con. We encountered a number of individuals, at both the state and school district levels, who would urge EPA to consider giving more directed guidance, while still retaining some flexibility. This might come in the form of providing, or clearly identifying, one model (or even preferred) approach, followed by other acceptable alternatives.

While the EPA materials on these environmental risks appear to be fairly well received and their receipt is correlated with action to at least test for the problem, the response at the school district level is not uniform. With the radon program in particular we see a significant variation in response across the states that appears to be correlated with the availability of risk information in addition to that included in the EPA manuals on radon in schools. In a few states, such as Pennsylvania and Colorado, where radon levels in the states have been measured and are perceived as a concern, more activity is occurring at both the state and the school district level. In states where little information is available regarding radon levels, schools are no more responsive than in states where measured levels have been found to be relatively low. It appears that, whenever it is possible to do so, EPA needs to communicate more specific information on items such as the expected risk level in the area, types of buildings at greatest risk, etc. More information of this type is likely to provide increased motivation for action, especially for circumstances when the expected risks are relatively higher.

EPA Materials Dissemination

The EPA materials are useful, but only when received in a timely manner by the intended audience. EPA's approach has varied from direct mailings to all school districts (asbestos) to sending the materials to state agencies to distribute (lead and radon). The most effective approach, and most expensive for EPA, is mailing program manuals directly to all school districts. The least effective was the lead in drinking water flyer and order form which was mailed to local school districts. This proved to be so ineffective (less than 10 percent of the sampled school districts obtained the manual in this manner) that EPA may wish to consider dropping this method of dissemination.

Where EPA wishes to conserve resources, and is willing to take some time in the materials distribution process, providing materials to state agencies to distribute to local school districts can be a relatively effective approach. However, it must be noted that the time period for state dissemination has varied from a few months to over a year and some states may take even longer. If reliance on state dissemination is to be truly effective, EPA should consider providing more support and motivation to the appropriate state agencies. This issue is discussed in greater detail below.

Overall Risk Communication/Risk Management Strategy

The development and distribution of high quality information materials is an integral component of an overall successful risk management strategy, but it appears that the EPA materials for these programs are reasonably adequate for their intended purposes. The results of this study suggest other additional areas of the overall strategy where improvements might significantly enhance the response of the target population. The form of the program requirements/recommendations, the technical follow-up in terms of workshops and response to questions, financial support, and the administrative structure to implement the program might also be considered. The following observations and recommendations to improve the overall program strategy are presented, based upon the findings for the three programs analyzed.

1. Regulations obviously have more motivational impact than recommendations. When EPA makes recommendations, as opposed to promulgating regulations, there is more room for posturing and conflicts among key individuals in state legislatures and state agencies. These individual behaviors can significantly delay program implementation at the state level. Recommendations also leave room for local districts to rate the issue as a low priority among conflicting demands for limited resources.

   The intended goals of the program, as well as the legislative mandate, will determine whether regulations or recommendations are more appropriate. If the goal is to stimulate specific action to reduce exposures to an environmental risk, then regulations will be more effective. If, on the other hand, the goal is primarily to provide accurate information about potential environmental risks and what the schools can do to reduce these risks then recommendations may be preferred. The advantage of recommendations in this case is that they offer each school the flexibility to make their own informed choices about how to allocate their budgets according to their own circumstances.

2. In a well intended approach to initiate the process of information flow, testing and remediation as soon as possible, EPA has begun each of the three study programs with "interim guidance." In some respects, this is having a backlash effect. Due to costly experiences with changing guidance in the asbestos program, the term "interim" has become a signal to some states and local school districts to defer any substantive or costly actions, or at least to move slowly. Combined with controversies about how much really should be done about some of these environmental issues, changing guidance has engendered some ill-will toward the EPA. All of this makes it difficult for EPA to positively initiate a program before final guidance can be provided. When EPA firmly believes that states and local school districts should move ahead on interim programs, one way to minimize the potential double jeopardy would be to

grandfather actions taken under the interim guidance as acceptable under any fina. regulations (and indicate this clearly in the interim guidance materials).

3. EPA is frequently not in control of funding support for these programs; nonetheless, it is a critical concern. School districts are well intended but school budgets are limited and trained staff are in short supply. Therefore, when difficult tradeoffs must be made, an unfunded recommendation is very likely to have a lower priority. Some districts have also cited instances of moving ahead when no funding is available and then finding funds were appropriated later. This situation has created another reason for districts to delay actions while awaiting potential funding from Congress, EPA or state agencies.

4. An important component of a successful risk communication program is working with key program personnel. In this case the significant link between the federal EPA and local school districts is the state agencies. The local school district survey results clearly indicate that districts first turn to their state health, environment and education agencies (in many cases there are several agencies that are involved) for technical assistance rather than the regional or federal EPA. The success of the program at the state level depends upon both the EPA program and the state environment. The state environment appears to be the most dominant program element and is accountable for the most significant differences across the states in responses at the school district level.

   EPA can enhance its influence through the states in several ways. Observations and suggestions include:

   - Some of the differences across states can be attributed simply to differences in the people involved in the state legislatures and assigned agencies. For example, New York has one of the most active asbestos and lead in school drinking water programs, while the radon program is held up by disagreements among a few key individuals on program design. Working with multiple individuals in one or more state agencies and legislatures in 50 states can be a formidable task. The EPA regional offices seem to have been under-utilized to break down the task into manageable pieces and to help facilitate local state processes. In cases such as New York's radon program, more directed model programs from EPA might also have helped.

   - Distribution of EPA materials alone is generally insufficient guidance. Training and workshops seem to be key elements in those states that have been relatively more successful in motivating testing for and remediation of environmental problems. For example, for the lead in school drinking water program, compare

the successful programs in New York, Texas and South Carolina, all of whom are using extensive training programs, to the limited success in Illinois and Pennsylvania, where such training has not been conducted.

As noted above, local school districts do not feel sufficiently informed to take on these programs without additional training. Further, state personnel repeatedly indicated that they felt the EPA training was not sufficient for them to then conduct their own training of local school districts. In other cases, state personnel simply could not attend EPA training due to funding limitations. A key for EPA, then, may be to provide and extend training and prototype training materials for state agency and support personnel (including university and consulting staff personnel) so that the state can then can conduct successful and cost-effective training for its school districts. EPA might also consider funding for state personnel to attend to training sessions. While more expensive, these up-front efforts may pay off in terms of faster and more efficient program implementation requiring less EPA follow-up.

- Program design and materials could benefit from more model programs and program implementation suggestions from which states can take ideas and run. Examples from this evaluation include suggestions on how to set up bulk contracts to cut costs to local school districts, or providing estimated costs per square foot of building, or other program costs.

- Working with states and local school districts can be enhanced by working more closely with state agencies to understand the problem and program before full media attention is focused upon the program. With a free press this is a difficult problem for the EPA, but we repeatedly heard complaints of being unprepared for public questions when the media received information prior to, or at the same time as, state agencies and local school districts. As a result, the public without adequate information or response from public school officials may be unduly alarmed about the risk, or about the competence of school officials. While public attention and concerns are acknowledged by school officials to have some impact, they are perceived to have a much smaller impact than many other program components.

Summary

Recognizing the age of the programs, the EPA asbestos, lead in school drinking water and radon programs have experienced considerable success in motivating and assisting states and local school districts to understand, test for and remedy situations leading to potential health

risks to students and staff at public schools. EPA's role in these programs primarily has been the development of the overall program design, including informational materials, which has then been turned over to individual states to implement. The most critical program element appears to be the handing off of the program to states and what individual states do thereafter. EPA has assisted with the development and distribution of written materials, workshops and training for state personnel, and has provided other technical support. While this support is good for what it does, it may be insufficient. Many states have difficulty implementing the programs, and many local school districts simply feel they are getting insufficient support from their state agencies. This causes confusion, delays, wasted monies and resentment. To reduce these problems may require EPA to enhance the level of information and technical support, especially in the form of training and workshops for state personnel, and to take a more active partnership role with the states.

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APPENDIX A

1. **Sample Correspondences:**
   Advance Letter
   First Mailing Cover Letter
   Follow-up Postcard
   Second Mailing Cover Letter

2. **Mail Survey Instruments:**
   Asbestos Containing Materials Survey Version
   Lead in Drinking Water and Radon Survey Version

3. **Telephone Survey Instrument and Instructions**

SCHOOL BOARD
ASSOCIATION
LETTERHEAD

September 5, 1989

Dear Superintendent:

The purpose of this letter is to inform you of a research project being done in our state in conjunction with the U.S. Environmental Protection agency. This project will evaluate and improve EPA's programs to help public school officials understand and respond to environmental pollutant risks and regulations.

We are joining with the EPA to ask for your help on this project. You will soon receive a brief, mailed questionnaire that the appropriate individual in your district should complete and return. The survey covers awareness of environmental risks and regulations, what actions have been taken to conform with regulations and how EPA can improve it's programs to inform schools about these issues.

Because not every school district can be surveyed, your district's response is very important. We have been assured that the reported results will in no way identify individual school districts. We urge you to respond promptly.

The research is being conducted by Research Triangle Institute of North Carolina and RCG/Hagler, Bailly, Inc. of Colorado. You will receive your surveys from RCG/Hagler, Bailly, Inc. If you have any questions please feel free to contact me at (add your phone number).

Sincerely,

NAME
Title
State Association of School Boards
Address

RCG/Hagler, Bailly, Inc.

P O Drawer
Boulder Colorado 80306-1908
303/449-5515 ■ Fax 303/443-5684

Name
District
Address
City, State, Zip

November 14, 1989

Salutation:

Recently your State Association of School Boards wrote you about a survey research project to evaluate and improve the U.S. Environmental Protection Agency's efforts to help local school districts manage environmental risks. Enclosed is your survey form. We ask that you, or the most appropriate individual in your district, complete this survey and return it to us in the enclosed postage paid envelope by December 1.

Your district's response is very important to the success of this project. Because we cannot send a questionnaire to all school districts, your district has been scientifically selected to help represent the variety of school districts across the state. All responses are strictly confidential. Survey results will be reported as aggregate data and will not identify individuals or individual school districts. The identification number on the survey form is there so we can check your district off the mailing list when the form is returned, and avoid sending you a reminder.

This research is being conducted in conjunction with the U.S. EPA, by the Research Triangle Institute of North Carolina and by RCG/Hagler, Bailly, Inc. of Colorado. We will be happy to answer any questions you might have. Please write, or call, me or Ruth Chapman at (303) 449-5515.

Thank you for your assistance.

Sincerely,

Robert D. Rowe, Ph.D.
Project Manager

/enclosures

Dear Superintendent:

November 22, 1989

Last week a questionnaire was mailed to you as part of a project to evaluate and improve the U S EPA's communication with local school districts. If you or someone in your district has already completed the questionnaire and returned it to us, please accept our sincere thanks. If not, please be sure that the questionnaire is completed and returned this week This questionnaire has been sent to a representative, random sample of school districts in your state. It is very important that every questionnaire be returned.

If by some chance, you did not receive the questionnaire, or if it has been misplaced, please call RCG/Hagler, Bailly today, collect, at 303-449-5515 We will put another one in the mail to you immediately Thank you for your help.

Sincerely,

Robert D Rowe
Project Director

RCG/Hagler, Bailly, Inc.

P O Drawer
Boulder Colorado 80306-1906
303.449-5515 • Fax 303/443-5684

Name
District
Address
City, State, Zip

December 12, 1989

Salutation:

Nearly a month ago I mailed a questionnaire to you as part of a project to help the U.S. Environmental Protection Agency evaluate and improve its communication with local school districts. The questionnaire was to be completed by either you or the most appropriate individual in your district. As of today, we have not received a completed questionnaire for your district.

I am writing to you again because your district is part of a small but representative sample of school districts selected to help evaluate the U S. Environmental Protection Agency's programs. Therefore, the information that your district supplies is very important to the success of this project. As I indicated in my first letter, all responses are strictly confidential. Data will be reported only in aggregate form.

I realize this is a busy time of year for school personnel, so we have extended the survey receipt date to December 29, 1989. In case your district's questionnaire was misplaced, I have enclosed a replacement. If you have any questions, please call me, Ruth Chapman or Dale Willingham at (303) 449-5515. We look forward to receiving your completed questionnaire within the next two weeks.

Thank you for your assistance.

Sincerely,

Robert D. Rowe, Ph.D.
Project Director

/enclosures

MANAGING ENVIRONMENTAL RISKS: A SURVEY OF LOCAL SCHOOL DISTRICTS

Research conducted by RCG/Hagler, Bailly, Inc. for Research Triangle Institute.

Please return survey to:

RCG/Hagler, Bailly, Inc.
P.O. Drawer 0
Boulder, CO 80306

L, R

By completing this questionnaire you will help us to evaluate and improve federal and state programs that provide information and assistance to local school districts for the reduction of student and staff exposure to environmental risks. Your response will be strictly confidential.

This form should be completed by the Superintendent of Schools or by the individual who is responsible for determining or supervising the actions your district takes to address potential environmental problems. The questions that follow are for your entire district.

Q1 What is your position with this school district? (Circle the number of the best answer)

1 SUPERINTENDENT

2 OTHER (please specify) _____

Position title

Q2 How long have you been employed in this district and how long have you been in your current position?

_____ YEARS IN THIS DISTRICT _____ YEARS IN CURRENT POSITION

Q3 Who is primarily responsible for directly supervising any actions this district takes about environmental issues?

_____

_____

Position or Department

Q4 In the past year, what has been the combined level of concern expressed by parents, students, faculty and staff about each of the following? (Circle number of best response for each item)

	NONE	LITTLE	SOME	GREAT	DON'T KNOW
Student use of drugs and alcohol	1	2	3	4	8
Student use of tobacco	1	2	3	4	8
Asbestos in school buildings	1	2	3	4	8
Radon in school buildings	1	2	3	4	8
Other indoor air pollution	1	2	3	4	8
Outdoor air near schools	1	2	3	4	8
Lead in drinking water	1	2	3	4	8
Other drinking water concerns	1	2	3	4	8
Other (specify) _____	1	2	3	4	8

Q5 What do you think the relative health risks for students and employees in your district's facilities for each of the following? We recognize it is difficult to know exactly how significant different risks are, but please circle the number of the response that best reflects your opinion about each issue.

	NO RISK		SOME RISK		GREAT RISK	DON'T KNOW
Student use of alcohol and drugs	1	2	3	4	5	8
Student use of tobacco	1	2	3	4	5	8
Asbestos in school buildings	1	2	3	4	5	8
Radon in school buildings	1	2	3	4	5	8
Other indoor air pollution	1	2	3	4	5	8
Outdoor air near schools	1	2	3	4	5	8
Lead in drinking water	1	2	3	4	5	8
Other drinking water concerns	1	2	3	4	5	8
Other (specify) _____	1	2	3	4	5	8

Q6 If a comment would clarify your response to Questions 4 and 5, please add it here

_____

_____

_____

ABOUT LEAD IN DRINKING WATER

Q7 From where does your school district obtain its supply of drinking water? (Circle numbers of all that apply)

1 SCHOOL OWNED WATER SUPPLIES
2 PURCHASE FROM LOCAL COMMUNITY
3 PURCHASE FROM PRIVATE SUPPLIER
7 OTHER (please specify) _____

Q8 Is there a regular program for testing your district's drinking water for contaminants (metals or other problems? (Circle number of best response)

1 NO
2 YES → How often does your district test drinking water supplies? _____
3 DON'T KNOW

Q9 How familiar are you with state and federal regulations and guidelines for testing for and correcting lead in school drinking water? (Circle number of best answer for each)

	NOT AT ALL FAMILIAR		SOMEWHAT FAMILIAR		VERY FAMILIAR
State regulations and guidelines	1	2	3	4	5
Federal regulations and guidelines	1	2	3	4	5

Q10 Which of the following has your district used to help determine actions on testing for and correcting lead in drinking water problems? Circle the numbers of all that apply)

1 NO INFORMATION HAS BEEN OBTAINED

2 PRINTED MATERIALS FROM THE U S ENVIRONMENTAL PROTECTION AGENCY

3 PRINTED MATERIALS FROM STATE HEALTH DEPARTMENT

5 NEWSPAPER OTHER PRINTED MEDIA TV AND RADIO

6 WORKSHOPS OR SEMINARS SPONSORED BY (specify) _____

7 OTHER (Such as state School Board Association, contractors, national education organization etc Please specify) _____

Q11 Have your district's buildings been tested for lead in the drinking water? (Circle number of best answer)

NO →

Is your district currently planning to test for lead levels in drinking water in the next 12 months?

1 NO → Please comment _____

2 YES _____

Skip to Question 14

YES → **Continue with Q12**

Q12 When did your district first test for lead in drinking water and when did your district most recently test for lead in drinking water? (List date or approximate number of months or years ago)

First test _____

Most recent test _____

Q13 What did these tests find? (Circle numbers of all that apply)

1 NO RETESTING OR CORRECTIVE ACTIONS WERE NECESSARY

2 RETESTING NECESSARY AT SOME SITES → Has this been scheduled or completed?
1 YES 2 NO

3 CORRECTIVE ACTIONS WERE NECESSARY →

a What types of problems, or potential problems, were found? (Circle numbers of all that apply)

1 WATER SUPPLY PROBLEMS
2 PLUMBING PROBLEMS
3 WATER COOLER PROBLEMS
7 OTHER (specify) _____

b Please describe the problem and any difficulties in taking corrective action

_____
_____
_____

c What is the status of corrective actions? (Circle numbers of all that apply)

1 SOME CORRECTIVE ACTIONS HAVE BEEN COMPLETED
When? _____
2 SOME CORRECTIVE ACTIONS ARE PLANNED WITHIN _____ MONTHS
3 SOME OR ALL CORRECTIVE ACTIONS HAVE NOT BEEN SCHEDULED
Why not? _____

Q14 When testing and correcting for any lead in drinking water problems in your district? (Circle numbers of all that apply)

	DISTRICT STAFF	PRIVATE CONTRACTORS	STATE STAFF	DON'T KNOW
Who did, or will do, the testing?	1	2	3	8
Who did, or will do, any corrective actions?	1	2	3	8

Q15 From what sources were funds obtained, or where will funds be obtained, to implement testing for and correcting lead in drinking water problems?

_____

Q16 In the spring of 1989 the U S Environmental Protection Agency (EPA) sent a flyer to all local school districts and state health and education agencies announcing a manual entitled "Lead in School Drinking Water." From where, if at all, have you obtained or will you obtain this manual? (Circle numbers of all that apply)

1 NOT AWARE OF THIS MANUAL
2 NO CURRENT PLANS TO OBTAIN THIS MANUAL
3 GOVERNMENT PRINTING OFFICE USING ORDER FORM IN THE FLYER
4 STATE DEPARTMENT OF EDUCATION OR DEPARTMENT OF HEALTH
5 FROM THE REGIONAL EPA OR FEDERAL EPA OFFICES
7 OTHER (Specify) _____
8 DON'T KNOW

Q17 Have you received the manual? (Circle number of best response)

1 NO → **Please Skip to Q21**
8 DON'T KNOW → **Please Skip to Q21**

3 YES → **Continue with Q18**

Q18 Using the five point rating scales beside each item, please indicate if you think the manual "Lead in School Drinking Water" is (Circle 8 if you don't recall or don't know)

	NOT				VERY	DON'T KNOW
Clear and Understandable	1	2	3	4	5	8
Instructive and Informative	1	2	3	4	5	8
Complete	1	2	3	4	5	8

If you did not find the manual to be complete, what else did you require?

_____

_____

Q19 Did the manual affect your district's actions or plans regarding testing the drinking water for lead? (Circle number of best response)

1 NO
2 YES, SOMEWHAT
3 YES DEFINITELY
8 DON'T KNOW

Q20 If the manual "Lead in School Drinking Water" had not been available, where would your district have sought guidance on testing and correcting for lead in drinking water supplies? (Circle numbers of all that apply)

1 INFORMATION MAY NOT HAVE BEEN SOUGHT
2 STATE HEALTH OR ENVIRONMENT DEPARTMENT
3 REGIONAL EPA OFFICE
4 ENVIRONMENTAL CONSULTING FIRMS
5 OTHER (specify) _____
8 DON'T KNOW

Q21 Have you seen the list published in the spring of 1989 of lead lined water coolers that the U.S. Environmental Protection Agency recommends should be tested, repaired or replaced? (Circle number of best answer)

1 NO
2 YES
8 DON'T KNOW

Q22 How important if at all do you think each of the following has been in motivating and helping your district to take action on potential health risks due to lead in school drinking water? (Circle number of best response for each item)

	NOT IMPORTANT				VERY IMPORTANT	DON'T KNOW
State requirements and recommendations	1	2	3	4	5	8
Federal requirements and recommendations	1	2	3	4	5	8
State technical assistance	1	2	3	4	5	8
State financial assistance	1	2	3	4	5	8
U S EPA materials and technical assistance	1	2	3	4	5	8
Concerns expressed by the public, media parents and staff	1	2	3	4	5	8
Other (specify) _____	1	2	3	4	5	8

Q23 How serious if at all, do you think each of the following has been in impeding your district in taking action on lead in drinking water? (Circle number of best answer for each item)

	NOT SERIOUS				VERY SERIOUS	DON'T KNOW
Inadequate district funds	1	2	3	4	5	8
Inadequate state funds	1	2	3	4	5	8
Inadequate information from the U S Environmental Protection Agency	1	2	3	4	5	8
Inadequate information from state agencies	1	2	3	4	5	8
Inadequate expertise in district	1	2	3	4	5	8
Inadequate staff to handle extra work	1	2	3	4	5	8

Q24 Please add any other comments you have about the Federal Environmental Protection Agency's requirements or about the materials and technical assistance they provided about lead in drinking water

_____

_____

ABOUT RADON GAS IN YOUR SCHOOLS

Q25 How familiar are you with state and federal regulations and guidelines for testing for and correcting the presence of radon gas? (Circle number of best answer for each)

	NOT AT ALL		SOMEWHAT FAMILIAR		VERY FAMILIAR
State regulations and guidelines	1	2	3	4	5
Federal guidelines	1	2	3	4	5

Q26 Which of the following has your district used to help determine actions on testing for and correcting radon gas problems? (Circle the numbers of all that apply)

1 NO INFORMATION HAS BEEN OBTAINED
2 PRINTED MATERIALS FROM THE U S ENVIRONMENTAL PROTECTION AGENCY
3 PRINTED MATERIALS FROM STATE HEALTH DEPARTMENT
5 NEWSPAPER AND OTHER PRINTED MEDIA
6 WORKSHOPS OR SEMINARS SPONSORED BY (specify) _____
7 OTHER (Such as state School Board Association, contractors, national education organization, etc. please specify) _____

Q27 Have your district's buildings been tested for radon gas? (Circle number of best response)

1 NO → Is your district currently planning to test for radon gas problems in the next 12 months?

1 NO → Please comment _____

2 YES _____

Skip to Question 30

3 YES → **Continue with Q28**

Q28 When did your district first test for radon gas, and when did your district most recently test for radon gas? (List date, or approximate number of months or years ago)

First test _____

Most recent test _____

Q29 What did these tests find? (Circle numbers of all that apply)

1 NO RETESTING OR CORRECTIVE ACTIONS WERE NECESSARY

2 RETESTING NECESSARY AT SOME SITES → Has this been scheduled or completed? 1 YES 2 NO

3 CORRECTIVE ACTIONS WERE NECESSARY →

a What types of problems were found?

_____

_____

b What difficulties have you had addressing these problems?

_____

_____

c What is the status of corrective actions? (Circle numbers of all that apply)

1 SOME CORRECTIVE ACTIONS HAVE BEEN COMPLETED
When? _____

2 SOME CORRECTIVE ACTIONS ARE PLANNED WITHIN _____ MONTHS

3 SOME OR ALL CORRECTIVE ACTIONS HAVE NOT BEEN SCHEDULED
Why not? (specify) _____

Q30 When testing and correcting for any radon gas problems in your district: (Circle numbers of all that apply)

	DISTRICT STAFF	PRIVATE CONTRACTORS	STATE STAFF	DON'T KNOW
Who did, or will do, the testing? . . .	1	2	3	8
Who did, or will do, any corrective actions?	1	2	3	8

Q31 From what sources were funds obtained, or where will funds be obtained, to implement testing for and correcting radon gas problems?

_____

Q32 From where, if at all, have you obtained, or will you obtain, the report Radon Measurements in Schools"? (Circle numbers of all that apply)

1 NOT AWARE OF THIS REPORT
2 NO CURRENT PLANS TO OBTAIN THIS REPORT
3 GOVERNMENT PRINTING OFFICE.
4 STATE DEPARTMENT OF EDUCATION OR DEPARTMENT OF HEALTH
5 FROM THE REGIONAL EPA OR FEDERAL EPA OFFICES
7 OTHER (Specify) _____
8 DON'T KNOW

Q33 Have you received the report "Radon Measurements in Schools?" (Circle number of best response)

1 NO → **Please Skip to Q37**
3 DON'T KNOW → **Please Skip to Q37**

3 YES → **Continue with Q34**

C34 Using the five point rating scales beside each item, please indicate if you think the report Radon Measurements in Schools is (Circle 8 if you don't know or don't recall)

	NOT				VERY	DON'T KNOW
Clear and Understandable	1	2	3	4	5	8
Instructive and Informative	1	2	3	4	5	8
Complete	1	2	3	4	5	8

If you did not find the report to be complete, what else did you require?

_____

_____

C35 Did the report affect your district's actions or plans regarding testing for radon? (Circle number of best response)

1 NO
2 YES SOMEWHAT
3 YES DEFINITELY
8 DON'T KNOW

C36 If the report "Radon Measurements in Schools" had not been available where would your district have sought guidance on testing for and correcting radon gas problems? (Circle numbers of all that apply)

1 INFORMATION MAY NOT HAVE BEEN SOUGHT
2 STATE HEALTH OR ENVIRONMENT DEPARTMENT
3 REGIONAL EPA OFFICE
4 ENVIRONMENTAL CONSULTING FIRMS
7 OTHER (specify) _____
8 DON'T KNOW

Q37 How important, if at all, do you think each of the following has been in motivating and helping your district to take action on potential health risks due to radon gas? (Circle number of best response for each item)

	NOT IMPORTANT				VERY IMPORTANT	DON'T KNOW
State requirements and recommendations	1	2	3	4	5	8
Federal recommendations	1	2	3	4	5	8
State technical assistance	1	2	3	4	5	8
State financial assistance	1	2	3	4	5	8
U S. EPA materials and technical assistance	1	2	3	4	5	8
Concerns expressed by the public, media parents and staff	1	2	3	4	5	8
Other (specify) _____	1	2	3	4	5	8

Q38 How serious, if at all, do you think each of the following has been in impeding your district in taking action on radon gas? (Circle number of best answer for each item)

	NOT SERIOUS				VERY SERIOUS	DON'T KNOW
Inadequate district funds	1	2	3	4	5	8
Inadequate state funds	1	2	3	4	5	8
Inadequate information from U S Environmental Protection Agency	1	2	3	4	5	8
Inadequate information from state	1	2	3	4	5	8
Inadequate expertise in district	1	2	3	4	5	8
Inadequate staff to handle extra work	1	2	3	4	5	8

Q39 Please add any other comments you have about the federal Environmental Protection Agency's guidance or about the materials and technical assistance provided about radon gas.

_____

_____

_____

ALSO ABOUT THE EPA PROGRAMS

Q40 Overall, how easy or how difficult has it been for your district to comply with U.S. Environmental Protection Agency regulations and/or guidelines for the following issues? (Circle number of best answer for each issue).

	VERY EASY				VERY DIFFICULT	DON'T KNOW
Lead in drinking water	1	2	3	4	5	8
Radon gas	1	2	3	4	5	8
Asbestos	1	2	3	4	5	8
Underground storage tanks	1	2	3	4	5	8
Other (Specify) _____	1	2	3	4	5	8
Other (Specify) _____	1	2	3	4	5	8

Q41 Does the U.S. Environmental Protection Agency currently provide any materials or assistance, or take any actions that help you in your job of dealing with possible environmental risks?

_____

_____

_____

Q42 In general, what could the U.S. Environmental Protection Agency do, that it is not doing now, to help you in your job of dealing with possible environmental risks?

_____

_____

_____

Q43 Please use this space for anything you would like to add about the U.S. Environmental Protection Agency, the materials it provides, the assistance it offers, mandates, recommendations, etc.

_____

_____

_____

ABOUT YOUR DISTRICT'S FACILITIES

Q44 Approximately how many of your district's buildings were built, or totally remodeled, in each of the following time periods? (Circle number of best answer for each time period)

	NUMBER OF BUILDINGS
Since 1980	_____
1960 - 1979	_____
1940 - 1959	_____
Before 1940	_____

IF YOU DESIRE MORE INFORMATION

☐ Check this box if you would like information how to obtain the U S. EPA Lead in School Drinking Water manual and the name and number of the contact person in your state government.

☐ Check this box of you would like information how to obtain the U S. EPA report "Radon Measurements in Schools" manual and the name and number of the contact person in your state government.

☐ Results of this survey will be aggregated so no school district can be identified. If you would like a summary of the results of this survey, check this box.

If you desire more information, please list your name and address here. (If it is different from the mailing label)

Name: _____

Address: _____

_____

Thank you for your assistance!

MANAGING ENVIRONMENTAL RISKS: A SURVEY OF LOCAL SCHOOL DISTRICTS

Research conducted by RCG/Hagler, Bailly, Inc. for Research Triangle Institute.

Please return survey to:

RCG/Hagler, Bailly, Inc.
P.O. Drawer 0
Boulder, CO 80306

ACM

By completing this questionnaire you will help us to evaluate and improve federal and state programs that provide information and assistance to local school districts for the reduction of student and staff exposure to environmental risks. Your response will be strictly confidential.

This form should be completed by the Superintendent of Schools or by the individual who is responsible for determining or supervising the actions your district takes to address potential environmental problems The questions that follow are for your entire district

Q1 What is your position with this school district? (Circle the number of the best answer)

1 SUPERINTENDENT

2 OTHER (please specify) _____

Position title

Q2 How long have you been employed in this district and how long have you been in your current position?

_____ YEARS IN THIS DISTRICT _____ YEARS IN CURRENT POSITION

Q3 Who is primarily responsible for directly supervising any actions this district takes about environmental issues?

_____

_____

Position or Department

Q4 In the past year, what has been the combined level of concern expressed by parents students, faculty and staff about each of the following? (Circle number of best response for each item)

	NONE	LITTLE	SOME	GREAT	DON'T KNOW
Student use of drugs and alcohol	1	2	3	4	8
Student use of tobacco	1	2	3	4	8
Asbestos in school buildings	1	2	3	4	8
Radon in school buildings	1	2	3	4	8
Other indoor air pollution	1	2	3	4	8
Outdoor air near schools	1	2	3	4	8
Lead in drinking water	1	2	3	4	8
Other drinking water concerns	1	2	3	4	8
Other (specify) _____	1	2	3	4	8

Q5 What do you think the relative health risk is for students and employees in your district's facilities for each of the following? We recognize it is difficult to know exactly how significant different risks are but please circle the number of the response that best reflects your opinion about each issue

	NO RISK		SOME RISK		GREAT RISK	DON'T KNOW
Student use of alcohol and drugs	1	2	3	4	5	8
Student use of tobacco	1	2	3	4	5	8
Asbestos in school buildings	1	2	3	4	5	8
Radon in school buildings	1	2	3	4	5	8
Other indoor air pollution	1	2	3	4	5	8
Outdoor air near schools	1	2	3	4	5	8
Lead in drinking water	1	2	3	4	5	8
Other drinking water concerns	1	2	3	4	5	8
Other (specify) _____	1	2	3	4	5	8

Q6 If a comment would clarify your response to Questions 4 and 5 please add it here

_____

_____

_____

ABOUT ASBESTOS IN SCHOOLS

C7 How familiar are you with state and federal regulations and guidelines for the management and abatement of problems related to asbestos containing materials in schools? (Circle number of best answer for each)

	NOT AT ALL FAMILIAR		SOMEWHAT FAMILIAR		VERY FAMILIAR
State regulations and guidelines	1	2	3	4	5
Federal regulations and guidelines	1	2	3	4	5

C8 Which of the following has your district used to help determine actions on the management and abatement of asbestos containing materials? (Circle the numbers of all that apply)

1 NO INFORMATION HAS BEEN OBTAINED
2 PRINTED MATERIALS FROM THE U S ENVIRONMENTAL PROTECTION AGENCY
3 PRINTED MATERIALS FROM STATE HEALTH DEPARTMENT
5 NEWSPAPER OTHER PRINTED MEDIA TV AND RADIO
6 WORKSHOPS OR SEMINARS SPONSORED BY (specify) _____
7 OTHER (Such as state School Board Association contractors national education organization etc Please specify) _____

C9 Who did or will do the inspections and writing of your district s Asbestos Management Plan? (Circle number of best answer)

OUTSIDE CONTRACTORS
2 DISTRICT PERSONNEL WHO TOOK TRAINING SEMINARS FOR ASBESTOS INSPECTORS AND MANAGEMENT PLANNERS
3 BOTH
7 OTHER (Specify) _____

Q10 Has your district submitted its Asbestos Management Plan to the state for review? (Circle number of best answer)

1 NO → **Skip to Q22**

2 YES → **Continue With Q11**

Q11 When did your district submit it's Asbestos Management Plan for state review?

_____ APPROXIMATE DATE

Q12 Has your district received comments on the plan from the state reviewers?

1 NO

2 YES → When did you receive the state's comments?

_____ MONTH _____ YEAR

Was your plan accepted as submitted or were changes required?

1 PLAN ACCEPTED AS SUBMITTED

2 MINOR CHANGES REQUIRED

3 SIGNIFICANT CHANGES REQUIRED

8 DON'T KNOW

Q13 Does your Asbestos Management Plan call for formal follow-up inspections by qualified inspectors?

1 NO

2 YES → How Often? _____

3 DON'T KNOW

Q14 Does your Asbestos Management Plan call for periodic surveillance?

1 NO
2 YES → How often? _____

By whom will this be conducted?
1 DISTRICT STAFF
2 CONTRACTORS
7 OTHER
8 DON T KNOW

3 DON T KNOW

Q15 What share of your district's buildings required repairing or replacement of pipes boiler covers, building materials etc ? (Circle best number)

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

What is the status of these actions?
1 ALL HAVE BEEN COMPLETED
2 IN PROGRESS → When will these efforts be completed? MONTH YEAR _____
3 EFFORTS HAVE NOT BEGUN
8 DON T KNOW

If 0% Continue with Q16

Q16 What share of your district's buildings required spraying asbestos containing materials to prevent fiber release (called encapsulation) or placing a barrier around the materials (called enclosure)? (Circle best number)

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

What is the status of these actions?
1 ALL HAVE BEEN COMPLETED
2 IN PROGRESS → When will these efforts be completed? MONTH YEAR _____
3 EFFORTS HAVE NOT BEGUN
8 DON T KNOW

If 0% Continue with Q17

Q17 Did any of your district's buildings require removal of asbestos containing materials?

1 NO → **Skip to Q22**

2 YES → **Continue With Q18**

Q18 How many buildings required asbestos removal efforts?

_____ BUILDINGS

Q19 In how many of these buildings are the removal efforts now completed?

_____ BUILDINGS

Q20 When are all asbestos removal efforts scheduled to be completed?

1 ALL REMOVAL EFFORTS HAVE BEEN COMPLETED
2 WITHIN 1 YEAR
3 WITHIN 2 YEARS
4 LONGER THAN 2 YEARS
5 NO SCHEDULE HAS BEEN SET FOR COMPLETING ALL EFFORTS
6 DON T KNOW

Q21 Please describe how many if any, buildings were, or will need to be, partially or totally closed for these removal efforts

NUMBER OF BUILDINGS _____

LENGTH OF CLOSURE _____

NUMBER OF STUDENTS AFFECTED _____

NUMBER OF STAFF AFFECTED _____

OTHER COMMENTS _____

Q22 The U S EPA has made estimates of how much this program would cost local school districts. It would be useful for the U S EPA to gain a clear picture of what actual costs are Approximately how much money has your district spent so far on inspection planning and abatement of asbestos containing materials?

$ _____

Q23 Approximately how much more money do you expect your district will need to spend to fully implement your Asbestos Management Plan? (Enter your best estimate)

$ _____

Q24 About what percent of the funding to conduct your inspections and design your management plan is from (Enter your best estimate for each funding source)

District funds?	_____	PERCENT
State funds?	_____	PERCENT
U.S. EPA grants?	_____	PERCENT
Other sources? (Specify) _____	_____	PERCENT
TOTAL	100	PERCENT

Q25 About what percent of the funding to implement your Asbestos Management plan will come from (Enter your best estimate for each funding source)

District funds?	_____	PERCENT
State funds?	_____	PERCENT
U.S. EPA grants?	_____	PERCENT
Other sources? (Specify) _____	_____	PERCENT
TOTAL	100	PERCENT

Q26 Several booklets and manuals such as "The ABC's of Asbestos in Schools", "100 Common Asked Questions about the New AHERA Asbestos-in-Schools Rule" and "Asbestos in Schools: A Guide to New Federal Requirements" have been provided to local school districts by the U.S. EPA. Do you recall receiving any of these materials? (Circle number of best answer.)

1 NO → **Skip to Q30**

2 YES → **Continue With Q27**

Q27 Using the five point rating scale beside each item, please indicate if you think the U S EPA materials on dealing with asbestos in schools were, in general. (Circle 8 if you don't recall or don't know)

	NOT				VERY	DON'T KNOW
Clear and Understandable	1	2	3	4	5	8
Instructive and Informative	1	2	3	4	5	8
Complete	1	2	3	4	5	8

If you did not find the materials to be complete, what else did you require?

_____

_____

Q28 Did these materials affect your district's actions or plans regarding asbestos in schools? (Circle number of best response)

1 NO
2 YES SOMEWHAT
3 YES DEFINITELY
8 DON'T KNOW

Q29 If these U S EPA materials had not been available, where would your district have sought guidance on inspections and correcting for asbestos problems? (Circle numbers of all that apply)

1 INFORMATION MAY NOT HAVE BEEN SOUGHT
2 STATE HEALTH OR ENVIRONMENT DEPARTMENT
3 REGIONAL EPA OFFICE
4 ENVIRONMENTAL CONSULTING FIRMS
7 OTHER (specify) _____
8 DON'T KNOW

Q30 How important, if at all, do you think each of the following has been in motivating and helping your district to take action on potential health risks due to asbestos? (Circle number of best response for each item)

	NOT IMPORTANT				VERY IMPORTANT	DON'T KNOW
State requirements and recommendations	1	2	3	4	5	8
Federal requirements and recommendations	1	2	3	4	5	8
State technical assistance	1	2	3	4	5	8
State financial assistance	1	2	3	4	5	8
U.S. EPA materials and technical assistance	1	2	3	4	5	8
Concerns expressed by the public, media, parents and staff	1	2	3	4	5	8
Other (specify) _____	1	2	3	4	5	8

Q31 How serious, if at all, do you think each of the following has been in impeding your district in taking action on asbestos? (Circle number of best answer for each item)

	NOT SERIOUS				VERY SERIOUS	DON'T KNOW
Inadequate district funds	1	2	3	4	5	8
Inadequate state funds	1	2	3	4	5	8
Inadequate information from the U.S. Environmental Protection Agency	1	2	3	4	5	8
Inadequate information from state agencies	1	2	3	4	5	8
Inadequate expertise in district	1	2	3	4	5	8
Inadequate staff to handle extra work	1	2	3	4	5	8

Q32 Please add any other comments you have about the Federal Environmental Protection Agency's requirements or about the materials and technical assistance they provided about asbestos in schools.

_____

_____

ALSO ABOUT THE EPA PROGRAMS

Q33 Overall, how easy or how difficult has it been for your district to comply with U S. Environmental Protection Agency regulations and/or guidelines for the following issues? (Circle number of best answer for each issue).

	VERY EASY				VERY DIFFICULT	DON T KNOW
Lead in drinking water	1	2	3	4	5	8
Radon gas	1	2	3	4	5	8
Asbestos	1	2	3	4	5	8
Underground storage tanks	1	2	3	4	5	8
Other (Specify) _____	1	2	3	4	5	8
Other (Specify) _____	1	2	3	4	5	8

Q34 Does the U S. Environmental Protection Agency currently provide any materials or assistance, or take any actions that help you in your job of dealing with possible environmental risks?

_____

_____

_____

Q35 In general, what could the U S. Environmental Protection Agency do, that it is not doing now, to help you in your job of dealing with possible environmental risks?

_____

_____

_____

Q36 Please use this space for anything you would like to add about the U S. Environmental Protection Agency, the materials it provides, the assistance it offers, mandates, recommendations, etc.

_____

_____

_____

ABOUT YOUR DISTRICT'S FACILITIES

Q37 Approximately how many of your district's buildings were built, or totally remodeled, in each of the following time periods? (Circle number of best answer for each time period)

	NUMBER OF BUILDINGS
Since 1980	_____
1960 - 1979	_____
1940 - 1959	_____
Before 1940	_____

IF YOU DESIRE MORE INFORMATION

☐ Check this box if you would like information on how to obtain the U S Environmental Protection Agency's manuals and pamphlets on asbestos in schools and the name and number of the contact person in your state government

☐ Results of this survey will be aggregated so no school district can be identified If you would like a summary of the results of this survey, check this box

If you desire more information, please list your name and address here (If it is different from the mailing label)

Name _____

Address: _____

_____

_____

Thank you for your assistance!

MANAGING ENVIRONMENTAL RISKS:
A SURVEY OF LOCAL SCHOOL DISTRICTS
TELEPHONE FOLLOW-UP

School District ID # _____

Interviewer ID # _____

Date of Contact _____/DAY _____/MONTH _____/YEAR

Date of Completion (if different from above)

ASK FOR THE OFFICE OF THE SUPERINTENDENT. CHECK TO BE SURE THAT THE NAME THAT YOU HAVE IS THE CORRECT NAME OF THE CURRENT SUPERINTENDENT IF NOT, OBTAIN THE NEW NAME AND CHECK SPELLING.

AFTER REACHING SUPERINTENDENT'S OFFICE:

Hello, my name is _____, and I'm calling for the Research Triangle Institute of North Carolina. We are assisting the U.S. Environmental Protection Agency in examining the ways in which local school districts manage some selected environmental issues.

Last November, and again in December, we mailed a survey form to your Superintendent, Dr /Ms./Mr. _____. We had asked that either (Superintendent's name) complete the survey or that he/she have the most appropriate individual in your district complete it. We haven't received your district's completed survey as yet and we're calling to see when the survey might be returned and to learn what has prevented some districts from returning the survey.

May I speak either with (Superintendent's name) or with the person to whom (Superintendent's name) might have directed the survey?

(IF APPROPRIATE INDIVIDUAL IS NOT AVAILABLE, ARRANGE CALL BACK TIME)

FOLLOW-UP CONDUCTED WITH:

1 SUPERINTENDENT

2 ASSISTANT TO SUPERINTENDENT (secretary, administrative assistant, etc)

3 ASSISTANT SUPERINTENDENT, FINANCE DIRECTOR, BUSINESS MANAGER, DIRECTOR OF CURRICULUM, etc.)

4 ENVIRONMENTAL COORDINATOR, DIRECTOR/SUPERINTENDENT OF FACILITIES, DIRECTOR/SUPERINTENDENT OF GROUNDS, etc.

7 OTHER (specify) _____

9 UNABLE TO MAKE APPROPRIATE CONTACT

AFTER REACHING CORRECT INDIVIDUAL:

Ms./Mr./Dr. _____, my name is _____ and I'm calling for the Research Triangle Institute of North Carolina. We're assisting the U.S. Environmental Protection Agency in examining the ways in which local school districts manage some environmental issues. Last November, and again in December, we mailed you a survey form. We haven't received your district's completed survey as yet and we're calling to see when the survey might be returned and to learn what might have prevented your district from returning the survey.

Q1. Can you tell me if you, or someone in your district, received this survey last November or December?

1 YES → **GO TO Q2**

2 NO →
8 DK →

This survey was sent to a small but representative sample of local school districts so your district's response is very important in helping EPA to clearly understand how environmental regulations affect public schools. Th survey only takes about 20 minutes to complete and it can be done by the individual who is most familiar with how your district handles environmental regulations. If we send you another copy of the survey today, could you complete and return it within a couple of weeks?

1 NO → **GO TO Q3**

2 YES → To help with our analysis while we wait for your survey to be returned, I'd like to ask you four brief questions.
(THEN GO TO Q4)

8 DK → (Not my decision, etc.) **Ask who would make that decision and ask to speak to that person.**

Q2. The survey was mailed to a small but representative sample of local school districts so your district's response if very important in helping EPA to clearly understand how environmental regulations affect public schools. The survey only takes about 20 minutes to complete. Will your district be returning the survey within the next couple of weeks?

1 NO → **GO TO Q3**

2 YES → To help with our analysis while we wait for your survey to be returned, I'd like to ask you four brief questions. **(GO TO Q4.)**

3 HAVE MISPLACED FORM → If we send you another copy of the survey today, could you return it within a couple of weeks?

1 NO → **GO TO Q3**

2 YES → To help with our analysis while we wait for your survey to be returned, we'd like to ask you 4 brief questions. **GO TO Q4**

8 DON'T KNOW → Please explain _____

_____

Q3. So that we don't rely solely on the information provided to us by school districts that responded to the survey, I'd like to ask you just a few questions. Your answers will help us understand the differences between the districts that did respond and those that did not. First, can you tell me why your district is not responding to the survey? (DO NOT READ LIST UNLESS RESPONDENT HAS DIFFICULTY ANSWERING.)

1 TOO BUSY

2 TOO MANY SURVEYS

3 WE'VE HAD NO PROBLEMS SO WE HAVE NOTHING TO SAY THAT WILL HELP EITHER EPA OR THE STATE

4 NOT INTERESTED IN PARTICIPATING IN AN EPA SURVEY (or any similar responses re: EPA or the government.)

7 OTHER (specify) _____

Q4. On a scale of 1 to 5, where 1 equals NO RISK and 5 equals GREAT RISK, how would you rate the relative health risk to your district's students and employees for each of the following?

	NO RISK				GREAT RISK	DON'T KNOW
Asbestos containing materials	1	2	3	4	5	8
Lead in the drinking water	1	2	3	4	5	8
Radon gas	1	2	3	4	5	8

Q5. And on a scale of 1 to 5, where 1 equals VERY EASY and 5 equals VERY DIFFICULT, how easy or how difficult has it been for your district to comply with federal regulations and/or guidelines for each of the following?

	VERY EASY				VERY DIFFICULT	DON'T KNOW
Asbestos containing materials	1	2	3	4	5	8
Lead in the drinking water	1	2	3	4	5	8
Radon gas	1	2	3	4	5	8

Q6. On a scale of 1 to 5, where 1 equals NOT MUCH HELP and 5 equals A LOT OF HELP, please rate how much help U.S. EPA materials or assistance have been to you in your job of dealing with environmental risks

	NOT MUCH HELP				A LOT OF HELP	DON'T KNOW
Asbestos containing materials	1	2	3	4	5	8
Lead in the drinking water	1	2	3	4	5	8
Radon gas	1	2	3	4	5	8

Q7. The U.S. EPA made estimates of how much the asbestos containing materials program would cost local school districts. It would be useful for the agency to have a clear picture of what actual costs are. Can you estimate about how much your district has spent so far on management plans, inspections and abatement activities for asbestos containing materials?

$ _____ 8 DK (Information not at hand)

Q8. Do you have any other comments you'd like to add?

_____

_____

_____

_____

_____

_____

IF RESPONDENT HAS AGREED TO OUR SENDING ANOTHER SURVEY FORM TODAY, CHECK CORRECT NAME AND ADDRESS

_____

_____

_____

_____

_____

THANK YOU VERY MUCH FOR YOUR TIME.
WE APPRECIATE YOUR ASSISTANCE!