



Public Knowledge And Perceptions Of Chemical Risks In Six Communities: Analysis Of A Baseline Survey

Risk Communication Series

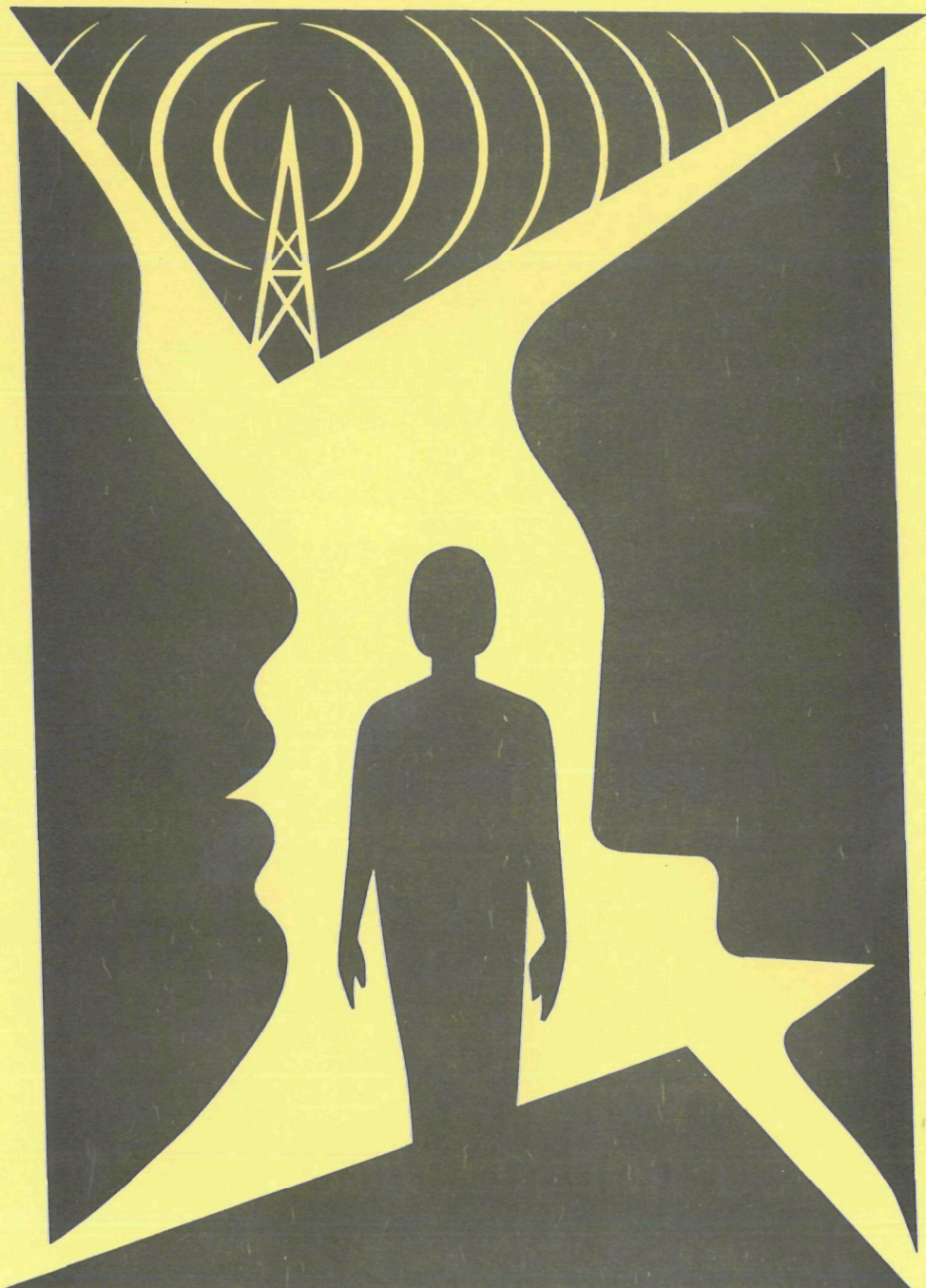


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PUBLIC KNOWLEDGE AND PERCEPTIONS OF CHEMICAL RISKS IN SIX COMMUNITIES:

Analysis of a Baseline Survey

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EXECUTIVE SUMMARY

Overview and Recommendations

Under a cooperative agreement with the Environmental Protection Agency, the Risk Communication Program of the Institute for Health Policy Analysis at Georgetown University Medical Center and the Center for Risk Communication at Columbia University conducted a survey of public perceptions regarding chemical risks in six U.S. communities. The overall purpose of the study was to establish a baseline for evaluating change over time in knowledge, attitudes, and behaviors in response to new information about toxic chemicals (Baseline Survey). During July and August 1988, over 500 citizens in each community (3,129 total) were randomly selected for a 25-minute telephone survey of their perceptions of the risks of chemicals in their community.

The six communities surveyed were: Albuquerque, New Mexico; Cincinnati, Ohio; Durham, North Carolina; Middlesex County, New Jersey; Racine, Wisconsin; and Richmond, Virginia. Subsequent surveys are planned starting in the summer of 1990 to evaluate trends in knowledge, attitudes, and behaviors, which may be influenced by Superfund, Title III, and other risk communication activities. Major news stories and other communication activities are being tracked as part of the cooperative agreement.

This report provides a broad overview of how citizens in these six distinct communities view environmental risks. The data reveal an interesting mix of similarities and differences among the studied communities. On the one hand, clear differences among communities exist in how they view environmental safety issues, the specific causes of environmental concern, and readiness to respond to emergencies within their individual community. Community profiles are currently being developed to assist in better understanding these differences. On the other hand, the data exhibit a good deal of similarity across communities in how citizens learn about risks and their basic knowledge and attitudes about environmental risk. Of particular interest is an examination of community differences with respect to respondents' perceptions of volatile environmental issues, such as Superfund sites. For instance, one of the surveyed communities, Albuquerque, has a Superfund site located nearby. Understanding how Albuquerque respondents receive, process, and react to Title III disclosures can provide important information about the most effective communication strategies for other Superfund communities.

The data analyses that have been completed support the following recommendations for program managers and communicators:

RECOMMENDATIONS

- . Use the baseline data and other studies to guide communication strategies at the federal and local level.
 - . Recognize target audiences
 - . Pretest messages
 - . Understand the importance of mass media in carrying environmental messages
- . Encourage and support health professionals to become involved in disseminating environmental information so that the personal implications of health factors can be addressed.
- . Develop messages based on the public's concept of environmental issues. The public is interested in the overall burden of risk and does not distinguish among sources of environmental risk. They want the focus to be on safety. Hence, an overall communications strategy that keys activities of related programs to pollution prevention should be considered.
- . Work with the mass media to improve communication with various publics.
- . Develop non-media channels of environmental information. Of particular concern is the public's lack of use of government sources.
- . Capitalize on the LEPC's perceived credibility. Support is needed to enhance performance so that credibility and public access can be maintained.
- . Improve public access to information on emergency plans.
- . Develop model community programs on toxic waste and Superfund issues to respond to high fear levels within communities.
- . Fully analyze Baseline data to guide current and future activities, particularly exploring the characteristics that differentiate target audiences of environmental messages.

- . Support research to evaluate specific interventions and messages in an open community setting.
- . Develop long-term strategies to enhance public understanding of risk concepts.

SUMMARY OF FINDINGS

The Baseline Survey findings are summarized below. General findings across all communities are listed first in each section, then specific community or demographic findings are highlighted.

Perceptions About Chemicals in the Community: General Findings (see pages 15 to 35 for more detailed information)

- . Nearly two-thirds of all the respondents believe that, compared to other communities, their community had clean air and water and few environmental health risks.
- . Across all communities, respondents view the risks of chemicals as a minor or slightly serious problem compared to other health and safety risks.
- . About half of all respondents reported that there are facilities in their community that pose a threat to the environment. The most frequently mentioned facilities included: chemical manufacturing plants, waste disposal sites, and nuclear facilities and power plants.
- . Over two-thirds of the respondents reported being somewhat concerned about the long-term threats posed by these local facilities.
- . When questioned about specific facilities, respondents seem the most concerned about more publicized facilities which are not located near where they live, e.g., only 10 percent say they live near a hazardous waste facility, yet 82 percent view these facilities as a serious threat.
- . Twenty-seven percent of the respondents reported having faced a threatening situation involving chemicals in the environment, the majority of whom reported being exposed to chemicals in the workplace. Other specific threats mentioned included: chemical spills, water pollution, and exposure to toxic clouds or gas fumes and leaks.

Community and Demographic Differences

- . Middlesex County respondents are more sensitive to and cynical about environmental risks in their community than are the other respondents. For example, almost half of the Middlesex respondents view environmental risks as a serious problem, whereas less than one-third of all other respondents report a serious problem.
- . Respondents in Albuquerque and Racine appear to be less concerned about environmental threats than do respondents in the other communities.
- . Older respondents (over 50) are more tolerant of long-term and immediate threats posed by chemical facilities than are younger respondents.
- . Respondents with higher educational levels seem to be more knowledgeable about locations in their community that pose a threat to the environment than are less educated respondents.

Sources and Channels for Environmental Information: General Findings

(see pages 37 to 51 for more detailed information)

- . Twenty-one percent of the respondents had heard or read something in the previous week about chemical risks in their community. Mass media sources, particularly local newspapers and local television news, were cited most often as the source of this information. The issues most often mentioned by respondents as being the topic of this information were chemical fires, transportation of waste, intentional/illegal dumping of hazardous materials, and ocean pollution, which correspond to the stories in the news in each of the surveyed communities.
- . All respondents reported receiving the most information about chemical risks in their community from news reporters. Reporters were given an intermediate rating on trust and knowledge.
- . Chemical industry officials have the highest knowledge rating of all sources, but the lowest trust rating.
- . Health professionals have the highest trust rating, but are used by the fewest respondents as an information source and are seen as about as knowledgeable as news reporters on chemical risks in the community.

- . Eighty-two percent of the respondents believe that they will receive their first notification of a chemical emergency in their area from the news media.

Community and Demographic Differences

- . Middlesex County respondents rely more on national television news, newspapers, and radio for environmental information than do respondents in other communities.
- . Those respondents with higher education levels identify the media as the source for emergency notification more (85 percent) than those with a high school education or less (78 percent); younger respondents were more likely to identify the media as the source of notification in an emergency than were older respondents.

Perceived Knowledge: General Findings

(see pages 53 to 64 for more detailed information)

- . Less than 15 percent of the respondents felt that they knew a lot about seven of the eight specific environmental topics presented. Twenty-four percent of the respondents felt that they knew a lot about the eighth topic, the quality of their drinking water.
- . Awareness of emergency preparedness plans ranked the lowest of the eight areas probed. Almost three in ten respondents (29 percent) stated that they knew nothing about this topic.
- . Eighty-one percent of the respondents believe that police and fire departments have trained emergency personnel.
- . Only 41 percent of all respondents agreed that the federal government is doing a good job cleaning up the environment.
- . Most respondents believe that there are active environmental groups (60 percent) and active local government groups (59 percent) dedicated to environmental issues.
- . Less than half of the respondents believe that local businesses are reducing their use of toxic chemicals and only 27 percent believe that these local businesses have notified the community about their use of these chemicals.

Community and Demographic Differences

- . Respondents with higher education levels rate their knowledge of the risks of chemicals in their community higher than do respondents with less education; younger respondents (under 30) report the lowest levels of perceived knowledge.
- . Middlesex County and Durham respondents report higher levels of perceived knowledge across all topic areas than respondents in the other communities.

Attitudes About Environmental Issues: General Findings

(see pages 65 to 80 for more detailed information)

- . Fifty-nine percent agreed with the statement that local officials are interested in what the public has to say about chemicals in their area.
- . Eighty-three percent agreed with the statement that the only time the public hears about the release of toxic chemicals is when the problem is so big it can't be kept secret anymore, suggesting a lack of perceived openness.
- . Fifty-one percent of the respondents strongly disagreed that a chemical is safe until tests prove it dangerous.
- . Half of the respondents agreed with the statement that chemicals have provided as much benefit as harm to our health.
- . Most of the respondents do not discriminate between accidental releases and planned releases; both are judged to be unsafe and unacceptable.
- . Sixty-three percent agree with the statement that it is not how much of a chemical one is exposed to that matters to one's health, it is whether or not one is exposed at all, suggesting that dose response is not understood by the public.
- . Fifty-six percent disagreed with the statement that there are some chemical risks that are too small to worry about, suggesting that a substantial minority do believe that some chemical risks are not significant.
- . Eighty-five percent of the respondents disagree with the statement that burying toxic wastes in landfills is not a serious problem, highlighting the public's sensitivity to toxic waste issues.

- . Local environmental groups were cited by 50 percent of the respondents as doing a good or excellent job of keeping their area safe from the threat of toxic chemicals. Local businesses received the lowest rating of performance; only 25 percent agreed that they were doing a good or excellent job. No group received strongly positive job ratings.

Community and Demographic Differences

- . Respondents in Middlesex County seem to have the most cynical attitudes about environmental issues, with the highest level of respondents disagreeing that the federal government is doing a good job (43 percent), 65 percent disagreeing that local businesses are very careful with dangerous chemicals, and 90 percent agreeing that the only time the public hears about the release of toxic chemicals is when the problem is so big it cannot be kept secret anymore.
- . Respondents from Richmond, Racine, and Cincinnati were more likely than other respondents to agree that the federal government is doing a good job cleaning up the environment.
- . Respondents over age 50 have a more tolerant attitude toward environmental risks than do younger respondents.

Self-Reported Protective Behaviors: General Findings

(see pages 81 to 85 for more detailed information)

- . Thirty-seven percent of the respondents have contributed time or money to an environmental cause in the past.
- . Thirty-six percent have used bottled drinking water.
- . Twenty percent or less of our respondents have engaged in environmental information-seeking behavior (i.e., talked to doctor, called government official, gone to library).

Community and Demographic Differences

- . Respondents in Middlesex County have engaged in more information-seeking behaviors than respondents in the other communities.
- . Across all communities, respondents with a higher level of education and those who are between 30 and 50 are most likely to engage in information-seeking behaviors.

- . Respondents in Albuquerque are less likely than other respondents to have donated time or money to an environmental cause.
- . Fifty-nine percent of Middlesex County respondents drink bottled water, but only 19 percent of respondents in Racine drink bottled water.
- . Across all communities, those who drink bottled water are better educated and younger than are respondents who engage in other behaviors.

Reaction to Health Problems: General Findings

(see pages 87 to 97 for more detailed information)

- . Sixty percent of the respondents had experienced at least one of the following health problems in the past month: headaches, nausea, shortness of breath, skin rashes, or irritation of the eyes, nose, throat.
- . Thirty-seven percent of these respondents had consulted their doctor about the health problem.
- . Forty percent of those respondents who experienced these symptoms attributed the cause of the problem to the environment.
- . Twenty-six percent of the respondents had experienced a personal health tragedy (cancer or child with birth defects) and 25 percent of these respondents attributed the tragedy to the environment.

Community and Demographic Differences

- . More respondents in Middlesex County (66 percent) reported having symptoms than did respondents in any other community.
- . Over 40 percent of the respondents in Richmond, Durham, and Albuquerque reported experiencing none of the symptoms.
- . Forty-two percent of female respondents reported consulting a physician for their symptoms compared with only 31 percent of the males.
- . Environmental causes are more often seen as the source of physical symptoms in Middlesex County (51 percent) and in Racine (49 percent) than in any other community.

The attached report describes each of the highlighted findings in greater detail with a comprehensive analysis of the results by demographic categories (gender, education, age, and community). At the current time, project personnel are visiting each of the six surveyed communities to interview local environmental opinion leaders. This research will aid in interpreting the survey results by placing the findings in the appropriate community context. In addition, the project staff has been monitoring the print news outlets in each of the six communities since July 1988 in order to track environmental news coverage which may influence the community-by-community responses to the planned follow-up survey.

SARA TITLE III

One aspect of the Superfund Amendments and Reauthorization Act of 1986 (SARA) is the Emergency Planning and Community Right-to-Know Act of 1986, commonly known as Title III. This law establishes requirements for federal, state, and local governments, as well as certain industries, for emergency planning and public reporting of the use, storage, manufacture, and release of hazardous and toxic chemicals. The purpose of Title III is to increase the public's knowledge about and access to information on the presence of hazardous chemicals in their communities and releases of these chemicals into the environment. The law also mandates local emergency planning committees (LEPCs) made up of representatives from business, industry, local government, the media, health professionals, fire and police departments, and citizen groups to develop emergency plans, produce a method for accumulating release and storage data, and disseminate emergency and nonemergency information related to toxic chemicals in the community.

The new law set several deadlines for industry, government, and local planning groups to respond to the regulations. One deadline of importance to risk communication activities was July 1, 1988, when certain firms that manufacture, process, or use any of over 300 listed toxic chemicals in excess of specified threshold quantities were required to complete a toxic chemical release form for each of these specified chemicals. This is a yearly reporting requirement; 1988 was the first reporting year.

The purpose of this reporting requirement, according to the Environmental Protection Agency (EPA), is to inform government officials and the public about releases of toxic chemicals in the environment and to assist in research and the development of regulations, guidelines, and standards. After submission of the release forms to the state and EPA, both EPA and the state were required by law to make this information available to the public. EPA has established and will maintain a computerized national toxic chemical database known as the Toxic Release Inventory (TRI), which is now available to the public. Another deadline of importance to this report was October 17, 1988, when the LEPCs were required to have completed the emergency response plans for their communities.

PURPOSE OF COMMUNITY BASELINE STUDY

The widespread availability of public information about storage and use of hazardous (and toxic) chemicals in the community can allow for broad-scale communication of specific community-based environmental risks from various sources. This risk communication can present a vivid stimulus, forcing individuals and communities to deal with the immediate and long-term threat that such chemicals pose to their health and the environment, which were previously unknown or ignored. It is unclear, however, how successfully the chemical risk information will be communicated to individuals; how it will be integrated with relevant risk information from other communication programs designed to influence community action to reduce risk, particularly through the LEPCs; how it will influence citizens' perceptions and attitudes about their community, the environment, and their personal health and safety; or how well the community's right to know actually will be served. For example, concern may be insufficient in some hazardous situations and fear and anxiety may be too great in less threatening situations. Because Superfund sites are such a volatile issue in many communities, understanding how these communities receive, process, and react to Title III disclosures can provide important information about the most effective communication strategies for Superfund communities and how other risk communication activities about toxic substances interact. Thus, implementation of Title III provides a natural experiment for evaluating the impact of

environmental risk communication activities in diverse communities.

In mid-1988, the Program on Risk Communication of the Institute for Health Policy Analysis (IHPA) at the Georgetown University School of Medicine, in collaboration with Columbia University's Center for Risk Communication, conducted a comprehensive baseline survey of public knowledge, attitudes, and behaviors related to chemicals and chemical risks. Six communities in the United States were surveyed in July and August 1988, prior to widespread dissemination of the toxic chemical release data, one part of the information now available under Title III. The collection and analysis of the survey data provide a basis for planning and evaluating risk communication efforts related to SARA Title III, RCRA, CERCLA, and other issues such as pesticides, toxic chemicals in drinking water, air toxic emissions, emergency response programs, hazardous waste sites, corrective action sites, Superfund sites, and future siting of waste management facilities. Additionally, these data provide guidance to those who plan communications activities about toxic and hazardous chemicals in both the public and private sectors, at the national, state, and local levels.

The three overall objectives of this research were to:

1. Provide an empirical basis for designing risk messages and selecting sources and channels to deliver information to various constituencies;
2. Provide a baseline against which data from follow-up studies can be compared to assess

the effects of risk communication strategies in various communities;

3. Track over time how community events influence the awareness, knowledge, attitudes, and behavior of the public and different population segments regarding chemical risks.

The baseline survey is one of several projects undertaken by Georgetown University and Columbia University in the past year to examine risk perceptions and communications about hazardous substances in the wake of Title III. During the summer of 1988, a series of qualitative research projects were conducted, including 15 focus groups with citizens, members of LEPCs, business and industry, local officials, and local risk communicators (Georgetown University/EPA Cooperative Agreement No. CX815190-01-0; report submitted to EPA). Interviews were also conducted with about thirty local emergency officials in Pennsylvania and New Jersey and with government officials, private environmental groups, industry, and academics. Anticipated and actual response to Title III reporting requirements, as well as problems and needs related to public understanding of the new reporting requirements and information about hazardous and toxic substances, were discussed with these individuals. Forty-two national surveys conducted by various polling firms between 1984 and 1987 were examined to determine trends in public attitudes toward the environment and regulatory agencies governing environmental issues. This analysis showed that attitudes remained relatively stable over this three-year period. In addition to providing input for the design and

analysis of the baseline survey, all of these recent research projects will enable planners to better understand the public's reaction to risk communication activities and develop more effective communication tools and strategies. For example, a manual for LEPCs and other community groups to use in planning communications with the public has been developed.

The three objectives of the baseline study will be met over the next few years. By itself, the baseline survey can meet only the first objective (communications planning) and provide input for the second objective. The second objective will be fully realized in the early 1990s when follow-up surveys similar to the baseline survey will be conducted. Activities are currently underway to satisfy the third objective. The major newspapers in each of the six communities as well as several national print media outlets are being examined daily to track significant environmental events as they occur in each location. This report covers the results of the baseline survey and, therefore, only addresses the first objective -- communications planning.

METHODOLOGY

With assistance from outside experts and EPA staff, a questionnaire was developed for a telephone interview. The questionnaire was pretested in a focus group and over the phone with a small sample of potential respondents. Six communities were chosen for the survey: Albuquerque, New Mexico; Cincinnati, Ohio; Durham, North Carolina; Middlesex County, New Jersey; Racine, Wisconsin; and Richmond, Virginia. These six communities do not represent the U.S. as a whole. The results provide comparisons of knowledge, attitudes, and behaviors from citizens in communities facing a variety of environmental risks, as well as assessing toxic chemical issues related to communication as a community public health problem. Many similarities across communities and comparisons with national surveys illustrate that some variables are not community dependent. Therefore, between-community comparisons, as well as some overall analyses, are described in this report.

A three-stage sampling design was used to randomly select the appropriate respondents in each community. Overall, the response rate for the survey was 59.1 percent, ranging from a high in Racine of 62.9 percent to a low in Middlesex County of 52.7 percent. As response rates have been declining in recent years, these rates are consistent with or better than other surveys (see Appendix, p. A-5). As a demonstrated lack of response bias is more important than a high response rate (Babbie, 1986), the demographics of the survey population were

compared to the community demographics.

Overall, the respondents in this survey represent a population that is somewhat younger, better educated, and more affluent than projected statistics from 1980 census data for these communities. The gender quota assured an equal representation of males and females in the survey. Because of their ages and education levels, we would expect that these respondents should be more aware of and concerned about environmental risks than would be a more typical sample of these communities. Therefore, this sample should be better representative of the groups of people in the community who would be more responsive to risk communication activities.

Appendix A contains a detailed description of questionnaire development, community selection, and sample selection. Appendix B contains a copy of the final questionnaire, and Appendix C contains a table of all responses to the questionnaire as discussed in this report.

DESCRIPTION OF SAMPLE

A total of 3,129 completed interviews were conducted in the six communities. These respondents represent a wide range of demographic categories. Their ages range from 18 to over 90 years old; 57 percent are currently married; and the majority (66 percent) have been living in the same community for more than fifteen years.

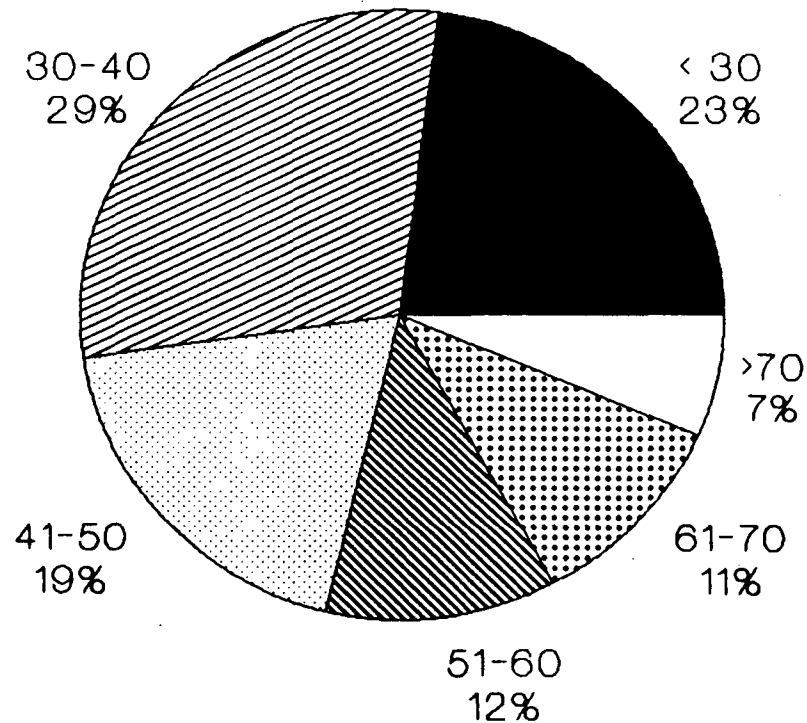
Overall, 23 percent of our respondents are under 30 years of age, 48 percent are between 30 and 50, and 29 percent are over 50 years old. Fifty-nine percent of the respondents have at least some college education, while 40 percent have a high school diploma or less. Fifty-three percent of the respondents report an annual household income of between \$20,000 and \$50,000, with 22 percent reporting less than \$20,000 and 19 percent reporting more than \$50,000. Sixty-six percent of the respondents currently own their own home and 40 percent have one or more children. Figures 1 and 2 (pages 11 and 12) show the exact age and education breakdown for our respondents.

Of those who are currently employed, over 50 percent work in professional jobs including health care, academia, administration, managerial, and sales. Another 10 percent work as craftsmen and mechanics; about 8 percent as transport operatives -- driving buses, trucks, or cabs; and another 8 percent are service workers. The remaining employed respondents fell into various categories such as farmers, garbage collectors, and construction.

Some demographic differences exist among the respondents in the six communities that may aid in explaining community differences in knowledge, attitudes, and behaviors. The respondents in Racine, for instance, have lower education levels and are older than respondents in most other communities. They also are more likely to have children, and own their own home. Respondents in Middlesex County are the youngest of all respondents in the survey, have the highest income, and are less likely to be married or have children. The Cincinnati residents, on the other hand, are the oldest respondents in our survey, have the lowest incomes, and are more likely to have lived in the community over 15 years. Table 1 (page 13) illustrates the community-by-community breakdown for various demographic characteristics of our respondents.

Figure 1

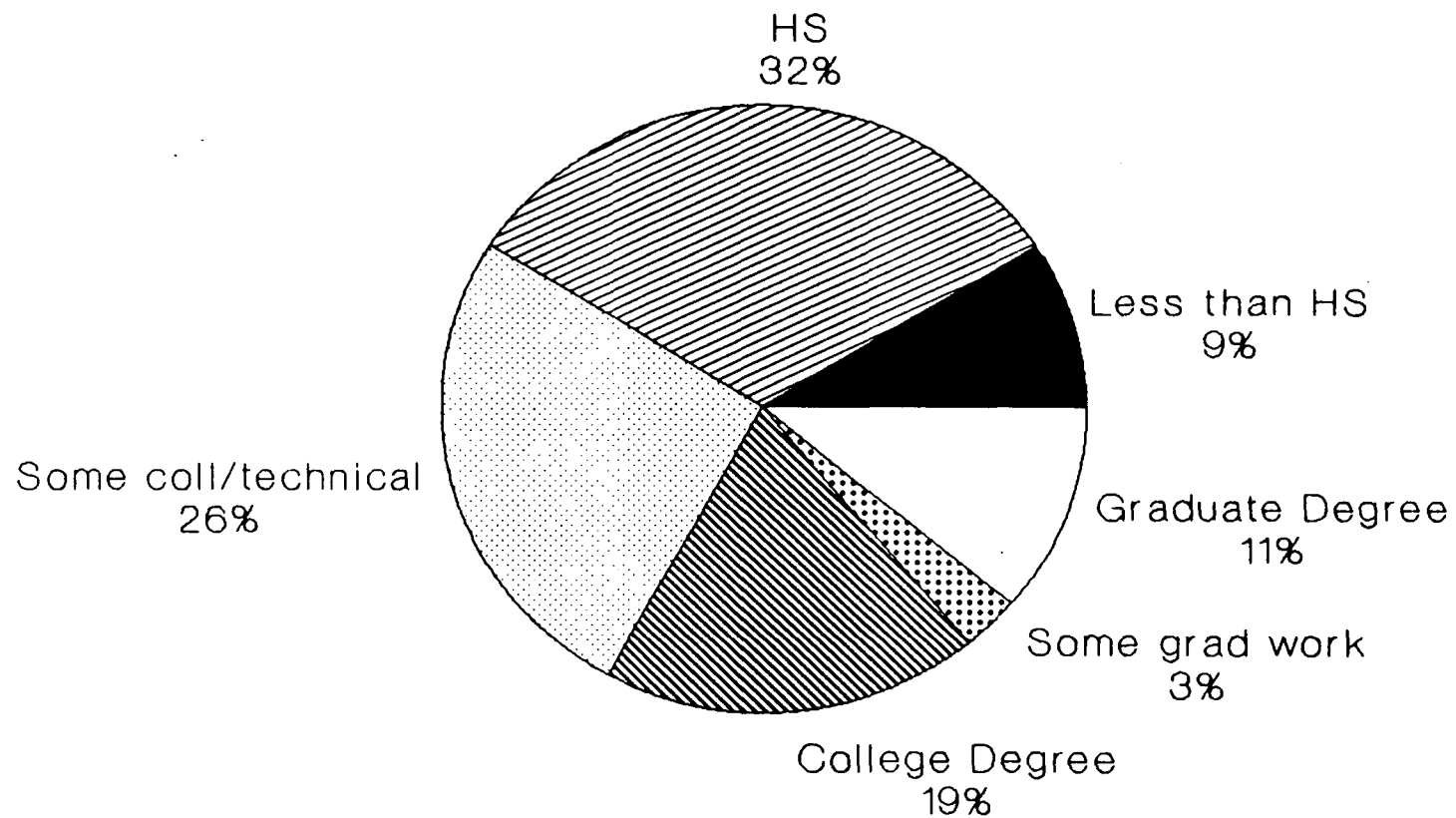
Age Distribution of Respondents



N=3113

Figure 2

Educational Distribution of Respondents



N = 3117

Table 1
Comparison of Community Demographics
(Percent)

	<u>Total</u>	<u>Richmond</u>	<u>Durham</u>	<u>Albuquerque</u>	<u>Cincinnati</u>	<u>Middlesex County</u>	<u>Racine</u>
Education							
> HS	59	62	67	65	55	62	48
Age							
< 30	23	21	24	23	24	27	20
30-50	48	49	50	48	45	45	50
> 50	29	30	25	28	32	28	30
Income							
< \$20,000	22	24	22	25	29	12	21
> \$50,000	19	20	21	16	16	26	15
Married	57	51	54	58	54	56	66
Children under 18	40	32	40	45	40	37	46
Own Home	66	63	61	66	67	66	72
Live in Community over 15 yrs	66	66	57	54	80	63	76

FINDINGS

PERCEPTIONS ABOUT THE COMMUNITY

Community Quality of Life

To provide a perspective of how environmental quality and safety issues were perceived relative to other concerns about the community, respondents were asked how well their community fared on six elements in overall community quality of life. Questions were posed about the provision of good health care and schools, the unemployment and crime rates, clean air and water, and environmental health risks.

As shown in Table 2 (page 30), satisfaction with environmental quality of life (clean air and water and few environmental health risks) ranked mid-way between judgments about community-provided services (health care and schools) and concerns about human conditions due to crime and unemployment. Nearly two-thirds of the respondents believed that, compared to other communities, their community had clean air and water and few environmental health risks. Within each community, more than half of the respondents believed that their community had clean air and water and provided few environmentally induced risks--with one striking exception. In Middlesex County, only about one-third of the respondents (37 percent) felt there was clean air and water and less than half (42 percent) felt there were few environmental risks.*

* Unless otherwise noted, all differences discussed in the text and tables are significant at $p < .05$. Percentages reported in the text are based on the entire sample (N=3129) except where noted.

It is interesting to note that while Middlesex County had negative views about environmental issues, perspectives about the crime rate were generally positive. Whereas, Richmond and Albuquerque, which had positive views about environmental quality of life, had strongly negative views about the crime rate. The remaining communities had generally positive views about both environmental and crime rate issues. This suggests that respondents were indeed discriminating in their responses about different issues. Linking general responses to risk communication activities will be an important element for media-tracking and follow-up studies.

Few differences exist in perceptions about environmental quality on the basis of primary demographics (age, gender, and education), with the exception that women were slightly less likely than men (60 percent compared to 66 percent) to view the environment as free from risks.

Seriousness of Chemical Risks

Respondents were asked to compare the risk of chemicals produced, stored, or processed in their community to other health and safety risks, such as car accidents, food-borne illness, heart disease, and home fires. A five-point scale (ranging from the view that the risk of chemicals was "not a problem" [1] to the view that chemical risks were a "very serious problem" [5]) was used to measure risk perceptions. On average, respondents tended to view the risk of chemicals as a minor or slightly serious problem (a mean of 2.64 on the five point scale).

Respondents in Middlesex County were much more likely than respondents in any of the other survey communities to view environmental risks as a serious problem (see Table 3, page 31). Almost half (47 percent) of those interviewed in Middlesex County viewed the production, storage, or processing of chemicals as a serious or very serious problem. This stark difference between Middlesex and the other communities suggests that residence in Middlesex may be a major factor influencing the overall risk perceptions of its citizens.

Facilities Posing a Threat

To ascertain their awareness of threatening stimuli in the environment, respondents were asked if there were any facilities or locations in their community that posed a threat to the safety of the environment. Respondents signifying that there were such facilities or locations were then asked to briefly describe them (all facilities or locations mentioned were recorded). About half (48 percent) of the participants said that there were such facilities in their community. As might be expected, there was some variance across communities. It ranged from a low of approximately one-third of the respondents in Racine and Albuquerque (both 36 percent) to a high of approximately two-thirds of the respondents in Middlesex County (64 percent) (see Table 4, part A, page 32). There were several differences among demographic subgroups in the propensity to state that there were locations or facilities that posed a threat to environmental safety. Over half of those with some college education (54

percent) reported living near a threatening facility compared to 38 percent of those with a high school diploma or less. This supports our expectation that people with a higher educational level are more knowledgeable about locations within their community associated with the storage, manufacture, or use of hazardous or toxic chemicals (see Appendix C, Q.7).

Interestingly, more men (51 percent) than women (45 percent) stated that there were such facilities, despite the earlier mentioned finding that women were more likely than men to perceive the overall threat of chemicals in the environment to be greater. Males may have greater familiarity with chemical production, storage, or processing facilities. Thus, results for this question may be due to knowledge about chemicals within the community and less likely due to attitudes and perceptions of chemical facilities.

Specific Facilities

The specific facilities mentioned by more than ten percent of the respondents citing a threat in the community are listed in Table 4, part B, page 32. Chemical manufacturing plants led the list of threatening facilities, mentioned by 43 percent of those reporting a threat to environmental safety (or 20 percent of all respondents). Waste disposal areas such as landfills/dumps (mentioned by 21 percent of those perceiving a threat) and hazardous waste disposal facilities (mentioned by 11 percent) were cited to a lesser degree. Nuclear facilities/power plants were reported by 19 percent of those mentioning a threat.

There were clear differences among communities in the types of facilities mentioned. Chemical manufacturing plants were the predominant threat mentioned in Richmond (68 percent of those perceiving a threat). Similarly, in Durham, chemical manufacturing plants were cited by more than half of those perceiving a threat (57 percent). Nuclear facilities/power plants were also cited but to a somewhat lesser degree (by 38 percent of the threatened respondents in Durham). A similar pattern emerged in Cincinnati, where chemical manufacturing plants (39 percent) and nuclear facilities/power plants (35 percent) dominated the mentioned facilities. Both chemical plants and nuclear facilities serve as highly visible stimuli for subjects to identify as environmental threats.

Respondents in Middlesex County, which led in the number of respondents mentioning threatening facilities, viewed chemical manufacturing plants (48 percent) and landfill/dumps (44 percent) as the most often perceived threatening facilities. Racine respondents most often mentioned chemical manufacturing plants (25 percent) and landfill/dumps (33 percent) as the threatening facility or location.

The most distinctive pattern of responses came from Albuquerque, where respondents mentioned a diversity of facilities or locations. Of the major facilities/locations analyzed (Table 4, part B, page 32), hazardous waste facilities were mentioned by about one-fifth (22 percent) of the Albuquerque respondents reporting a threatening facility. Nuclear

facilities/power plants (16 percent) and landfill/dumps (11 percent) were mentioned to a lesser degree. However, several other facilities or locations were mentioned by Albuquerque respondents. Part C of Table 4, page 32, lists all the facilities/locations mentioned by at least ten percent of the respondents in any one community. In Albuquerque, military facilities (19 percent), research laboratories (18 percent), and gasoline stations (12 percent) were mentioned by those perceiving threats to environmental safety. The only other community where any uniquely perceived threats were mentioned was Middlesex, where 20 percent of those distinguishing a threat mentioned a refinery.

When identifying threats, respondents are likely to retrieve from memory the most vivid examples of stimuli that qualify as "threats to the safety of the environment." It appears that chemical manufacturing plants provide the most salient of such stimuli, as these were recalled at more than twice the rate of any other facility or location. Landfills/dumps, nuclear facilities/power plants, and refineries provide other salient stimuli. In most communities, responses were clustered on these major locations. However, in Albuquerque, only a few major facilities or locations appear to exist that can be identified as vivid environmental threats. Threatening stimuli are cited to a lesser degree than in the other communities (with the exception of Racine) and the identified facilities/locations are more diverse.

In follow-up studies it will be important to track how individuals in Albuquerque react to risk communications, compared to other communities, given the lack of singular identifiable threatening facilities or locations. For example, if a problem occurs in Albuquerque, will reactions to risk communications be enhanced because people did not identify the threat beforehand or will reactions be muted because the lack of identifiable threats decreases sensitivity? Alternatively, if a problem arises in a facility that is not perceived to be threatening, will reactions in Albuquerque be enhanced or muted because of the lack of other identifiable threats? Thus, do identifiable threats serve as a "heat sink" for risk reaction (e.g., if a gasoline station has a leak, do people perceiving the threat of a nuclear reactor heave a sigh of relief?) or do people poised to react to threats tend to be more sensitive to risk communications? In this case, if a gasoline station has a leak, would people perceiving the threat of a nuclear reactor tend to notice the aberration and more vigorously call for corrective actions?

In addition to examining individual facilities or locations, data were compiled to provide an overview of the general types of perceived environmental threats (see Table 4, part D, page 32). Four areas were identified: industry/manufacturing in general, chemical industry, garbage/waste/storage facilities, and general threats such as pollution, gas stations, military facilities, etc. Individual responses can be counted in more than one category (e.g., a chemical manufacturing facility was counted as

both industry/manufacturing and chemical industry). Industrial/manufacturing was identified by almost half (48 percent) of those perceiving a threat, followed by the chemical industry (mentioned by 43 percent). One-third (33 percent) of the respondents mentioned garbage/waste/storage facilities. Only 7 percent mentioned general threats, supporting the view that the vividness of the environmental threat is an important element of risk perception.

Nature of Concern

To ascertain the amount and type of concern about the identified facilities, respondents were asked how concerned they were about the first facility that they mentioned (see Appendix C, Q.9). Almost half (46 percent) of the respondents identifying a threatening facility said they were somewhat concerned about the facility and an additional 23 percent said they were concerned a great deal. About one-quarter (26 percent) indicated that they were not at all concerned about the facility that they mentioned as threatening.

Less concern about environmental safety threats was expressed in Albuquerque and Racine, where 29 percent and 32 percent, respectively, said they were not at all concerned by the facility that they mentioned as threatening. The lack of identifiable, vivid, threatening facilities may contribute to the lack of concern in these communities. Interestingly, age appeared to increase the comfort level with environmental safety threats. Over one-third (36 percent) of all respondents over fifty years

of age stated that they were not at all concerned with the threatening facility or location they first mentioned, compared to less than one-quarter of those fifty years of age or younger.

Long-term threats to health and the environment were clearly the factors that concerned respondents about the identified facilities. As shown in Table 5 (page 33), almost two-thirds of the respondents said they were bothered a great deal about the long-term threat to health (63 percent) or to the environment (67 percent) and only 4 percent said they were not at all concerned about these factors. Major health threats were of concern to about half of the respondents as 51 percent indicated they were concerned a great deal about the possibility of a major accident.

There was somewhat less concern expressed about the more immediate and irritating aspects of the identified facilities or locations. About one-third of the respondents indicated that they were concerned a great deal about irritation to the eyes, nose, throat, or skin (38 percent); dust, dirt, or smoke in the air (37 percent); or the unpleasant smell (33 percent). However, over one-quarter of the sample said they were not at all concerned by these same factors and, in the case of unpleasant smells, more people said they were not at all concerned (40 percent) than said they were concerned. Additionally, more respondents said they were not at all concerned about the decrease in property values (40 percent) than said they were concerned a great deal (26 percent) by this element of risk.

As might be predicted from the risk perception literature, major, uncontrollable, dreaded, and unknown risks are more likely to contribute to the level of concern individuals express than are more immediate, controllable, bothersome (but not life threatening) risks. It also appears that threats to personal health as opposed to personal property values predominate the concerns individuals express about local facilities.

Examination of the concerns expressed across all communities indicates that long term, serious health and environmental threats and the possibility of a major accident are of deep concern to the majority, or near majority, of respondents (see Table 6, part A, page 34). The only exception was Racine, where only one-quarter of the respondents (27 percent) expressed a great deal of concern about a possible accident.

In Middlesex County, more than half of the respondents expressed major concerns about the long term and acute health threats mentioned above and, in addition, almost half of respondents expressed a great deal of concern about the unpleasant smell (52 percent); dust, dirt, and smoke (49 percent); and irritation to the eyes, nose, throat, and skin (47 percent). Thus, in Middlesex, not only were long-term serious hazards of great concern to respondents but the immediate bothersome aspects of the facilities were often expressed as a major concern. Clearly, the physical aspects of the facility or location are quite different among the communities. As discussed above, there were several different types of facilities or

locations mentioned in Middlesex that respondents believed posed a threat to their safety. However, the data also imply that respondents in Middlesex are sensitized to the risks and tend to react strongly to all elements of the threat posed by the facility.

Educational and age differences appear related to the degree to which respondents are bothered a great deal by the different risk elements. Individuals with a high school diploma or less, compared to individuals with at least some college education, tend to express a greater degree of dissatisfaction with the unpleasant smell (43 percent compared to 29 percent); dust, dirt, and smoke (44 percent compared to 33 percent); and irritation (48 percent compared to 34 percent) (see Table 6, part B, page 34). This difference may simply be a reflection of location of their home or work near the facilities in question. Educational level had no significant influence on levels of concern about long-term health or environmental risks.

Examination of the individual areas of concern indicates that age influenced several of the areas measured. Significantly, more younger respondents (less than 30 years) than middle-aged respondents (30 to 50 years) expressed a great deal of concern about long-term risks to health and the environment, and more middle-aged individuals expressed a great deal of concern than older respondents (more than 50 years) (see Table 6, part C, page 34). Evidently, with age comes increased tolerance of the long-term threats posed by local facilities.

Evaluation of Local Facilities

In addition to asking respondents about the locations and facilities in the community that cause concern in an open-ended (unaided) manner, respondents were also asked to evaluate whether each of eight types of facilities was located nearby, and if so, whether it posed a threat to the safety of the environment in their community. This aided questioning explored the degree to which respondents view certain facilities as threatening when directly questioned about these facilities. It will be important to assess how those perceptions change following implementation of Title III.

As shown in Table 7 (page 35), while most respondents stated that gasoline stations (79 percent) and dry cleaners (68 percent) were located nearby, few of those who said they lived near one (16 percent and 11 percent, respectively) believed that these facilities posed a threat to the safety of the environment. Between one-quarter and one-third of the sample indicated a chemical manufacturing plant (30 percent), farm supplier (26 percent), landfill (31 percent), or sewage treatment plant (29 percent) located nearby. A large variance exists in the percentage of subjects who viewed these facilities as threatening. Few (14 percent) who live near a farm supplier believe that it is threatening to environmental safety; 34 percent who said they live near a sewage treatment plant view it as threatening; a greater percentage (60 percent) who live near a landfill view it as a threat; and chemical manufacturing plants

were perceived as a threat by two-thirds (66 percent) of those who said one is located nearby. A small percentage of subjects (9 percent) said they live near an incinerator, but more than half of them (58 percent) said that it poses a threat. Although a similarly small percentage (10 percent) said they live near a hazardous waste facility, by far the largest percentage (82 percent) view it as a threat.

Examination of the between-community results indicate that the sensitivity of Middlesex County respondents (discussed above) was also evident in the evaluation of the threat posed by the facilities (see Table 7, page 35). For every facility type, a greater percentage of respondents in Middlesex viewed them as threatening than in any of the other communities. For example, almost one-fourth (24 percent) of the Middlesex respondents who live near gas stations viewed them as a threat to environmental safety and 16 percent viewed dry cleaners as a threat. The opposite pattern was evident in Racine. Except for those who said they live near a landfill, Racine respondents were less likely to view each facility as threatening. For example, although a higher percentage of Racine subjects said they live near a sewage treatment plant than in any other community (40 percent), a small percentage (18 percent) viewed the plant as a threat to environmental safety.

Personal Experience With Life-Threatening Environmental Risks

Respondents' perception of their community may be influenced by many variables, one of which is their personal experience with

threatening risks from chemicals in the environment. This variable is important in helping to explain respondents' answers concerning their perceived knowledge and attitudes about chemical risks as well as the protective behaviors in which they engage.

We asked respondents if they had ever faced a situation involving chemicals in the environment that they considered threatening to themselves or their immediate family. The majority of respondents from all communities (73 percent) said that they had not experienced a threatening situation, (see Appendix C, Q.26). Thirty-nine percent of Middlesex County respondents had faced a threatening situation, whereas only twenty-one percent of those living in Durham had faced a threatening situation. More males (30 percent) than females (23 percent) noted threatening situations. Similarly, highly educated (30 percent with more than a high school diploma compared to 21 percent with a high school diploma or less) and middle aged (32 percent between the ages of 30-50; 26 percent under 30; 19 percent over 50) respondents were more likely to report threatening situations (see Appendix C, Q.26).

To examine respondents' perceptions of threatening situations, we asked them to briefly describe the threatening situation. One-quarter of the respondents indicated that they work with chemicals. Another 21 percent said they or their families have been exposed to a toxic cloud, gas fumes, odors, or gas leaks. Thirty-one percent of these respondents had been threatened by a chemical accident -- either a leak or spill, a

plant or warehouse blowing up or catching fire, or a truck or train carrying chemicals overturning. Another 22 percent of these respondents felt personally threatened by water pollution, either of their drinking water, the rivers or oceans, or by eating contaminated fish. Eight percent of the respondents who indicated that they had faced a threatening situation had been evacuated due to one or more of the hazards described above; the majority of these respondents live in Durham.

Personal experience with a threatening situation will serve as an independent variable in several further analyses of the survey data (see Future Data Collection and Analysis section). As stated earlier, this variable may help explain much of the variation in perceived knowledge, attitudes, and current behavior regarding chemical risks.

TABLE 2

Percent of Subjects with Positive
Views About Community Issues

	<u>TOTAL</u>	<u>Rich</u>	<u>Dur</u>	<u>Alb</u>	<u>Cin</u>	<u>Mid</u>	<u>Rac</u>
Good Health Care	89	90	95	84	92	88	87
Good Schools	79	78	79	64	84	81	88
Clean Air & Water	64	72	85	65	56	37	68
Few Environmental Risks	63	62	73	69	59	42	72
Low Unemployment Rate	57	64	69	46	57	58	49
Low Crime Rate	44	7	54	18	72	61	51

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Unless otherwise noted, all differences discussed in the text and tables are significant at $p < .05$. Percentages reported in the text are based on the entire sample (N=3129) except where noted.

TABLE 3

Percent Viewing Chemical
Risks as a Serious Problem *

Middlesex County	47
Cincinnati	28
Albuquerque	19
Durham	19
Richmond	17
Racine	9
Overall Percent	23

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* Combines respondents' viewing risk as a "serious" or
"very serious" problem

Unless otherwise noted, all differences discussed in the text and tables are significant at $p < .05$. Percentages reported in the text are based on the entire sample (N=3129) except where noted.

TABLE 4

Percent Of Subjects Mentioning
Facilities Posing Threat to Environmental Safety

	<u>TOT</u>	<u>Rich</u>	<u>Dur</u>	<u>Alb</u>	<u>Cin</u>	<u>Mid</u>	<u>Rac</u>
Part A							
Total percent signifying threatening facility or location	48	44	53	36	57	64	36
-----	-----	-----	-----	-----	-----	-----	-----
Part B*							
Chemical Manufacturing Plant	43	68	57	8	39	48	25
Landfill/Dump	21	8	6	11	16	44	33
Nuclear Facility/ Power Plant	19	10	38	16	35	2	11
Hazardous Waste Disposal Facility	11	9	7	22	13	12	5
-----	-----	-----	-----	-----	-----	-----	-----
Part C*							
Refinery	7	4	**	4	4	20	1
Research Laboratory	4	1	7	18	1	2	1
Gasoline Station	3	3	1	12	2	3	1
Military Facility	3	1	0	19	0	1	0
-----	-----	-----	-----	-----	-----	-----	-----
Part D*							
Industry/Manufacturing	48	72	59	13	46	49	42
Chemical Industry	43	61	60	14	41	46	26
Garbage/Waste/Storage Facilities	33	24	13	34	30	54	38
General Threats	7	10	4	9	8	7	9

* Represents percent of those stating there was a threatening facility in the community (i.e., "yes" to Q.7)

** < 1 percent

Unless otherwise noted, all differences discussed in the text and tables are significant at $p < .05$. Percentages reported in the text are based on the entire sample (N=3129) except where noted.

TABLE 5

Percent of Respondents
Bothered by Perceived Threats*

	<u>A Great Deal</u>	<u>Bothered Somewhat</u>	<u>Not At All</u>
Unpleasant Smell	33	26	40
Long Term Health Danger	63	33	4
Dust, Dirt, Smoke	37	36	27
Possible Major Accident	51	33	16
Irritation to Eyes, Nose, Throat or Skin	38	34	28
Long-Term Environmental Damage	67	29	4
Decreased Property Value	26	33	40

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* Comparisons of trends only; no significance tests conducted.

TABLE 6
Percent of Respondents Bothered A Great Deal By Facility Influence

A. Community

	<u>Unpleasant Smell</u>	<u>Long-Term Health Danger</u>	<u>Dust, Dirt Smoke</u>	<u>Possible Major Accident</u>	<u>Irritation to Eyes, Nose</u>	<u>Long-Term Environmental Damage</u>	<u>Decreased Property Values</u>
TOTAL	33	63	37	51	38	67	26
Rich	30	56	35	45	33	62	23
Dur	20	62	25	64	34	62	22
Alb	21	60	32	61	40	71	28
Cin	31	65	39	54	39	69	23
Mid	52	73	49	52	47	73	34
Rac	30	52	32	27	26	59	23

B. Education

HS or less	43	61*	44	57	48	65*	30
Some college or more	29	63*	33	49	34	67*	25

C. Age

Less than 30 years	41	68	42*	55	42*	70	30*
30-50 years	31	64	34*	52	37*	68	25*
More than 50 years	29	51	36*	43	36*	57	23*

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* Comparisons not significant at $p < .05$.

Unless otherwise noted, all differences discussed in the text and tables are significant at $p < .05$. Percentages reported in the text are based on the entire sample (N=3129) except where noted.

TABLE 7

Percent of Respondents with Facility Located
Nearby and Percent Threatened by Facility

	<u>TOT</u>	<u>Rich</u>	<u>Dur</u>	<u>Alb</u>	<u>Cin</u>	<u>Mid</u>	<u>Rac</u>
Chem. Manuf. Plant located nearby	30	29	35	9	36	54	19
Threatened	66	61	76	67	66	75	32

Dry Cleaner located nearby	68	75	67	66	73	79	52
Threatened	11	11	12	9	11	16	7

Farm Supplier located nearby	26	23	30	21	17	31	33
Threatened	14	6	14	15	19	19	11

Gasoline Station located nearby	79	81	79	80	80	86	70
Threatened	16	14	17	17	13	24	10

Incinerator located nearby	9	7	9	4	12	13	8
Threatened	58	50	47	53	66	81	33

Landfill located nearby	31	26	24	20	24	49	38
Threatened	60	42	43	43	62	86	56

Sewage Treatment Plant located nearby	29	26	35	16	23	29	40
Threatened	34	48	22	43	40	53	18

Hazardous Waste Facility located nearby	10	6	9	11	15	18	6
Threatened	82	82	81	73	88	88	71

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Unless otherwise noted, all differences discussed in the text and tables are significant at $p < .05$. Percentages reported in the text are based on the entire sample (N=3129) except where noted.

ENVIRONMENTAL INFORMATION SOURCES AND CHANNELS

Much information dissemination research centers around the belief that the most effective method of dissemination is to use the mass media to create awareness about an issue or problem and interpersonal sources to facilitate changes in attitude or behavior. This survey asked respondents about their actual use of mass media and interpersonal sources of information. In addition, respondents were queried about their perceptions of and access to a variety of information channels, which will provide important information to support communications planning at the national, state, and local levels. Mass media sources were predominant among our respondents, but a variety of other sources also seem to have potential for communicating risk information.

We asked respondents if they had heard or read anything about the risks of chemicals or hazardous wastes in their community within the past three months. If the respondent indicated yes, we then asked about the past week. A little over half of the respondents (1620; 52. percent) had heard or read something in the past three months and 669 (41. percent of 1620) of those respondents had heard or read something in the past week. Only slight demographic differences exist between those respondents who had read or heard something in the past three months and those who had not recently read or heard something about chemical risks. The respondents who had received risk information recently were more educated (58 percent had at least some college education), and more likely to be middle-aged or

older (56 percent were 30-50 years old v. 44 percent who had not recently received information).

Source of Recent Information

For those 21 percent (of all 3129 respondents) who had indicated that they had read or heard something in the past week, we then asked about the source of this information (Table 8, page 47). Overwhelmingly, mass media sources, particularly newspapers and local television news, were cited as the source of recent information about environmental risks. Seventy-six percent of all respondents who had read or heard something about environmental risks within the past week indicated the newspaper as the source of this information, 62 percent indicated local television news, and 11 percent indicated national television news. Another 19 percent said they received their recent environmental information from the radio. Interpersonal sources of information, such as family members, friends, neighbors, governmental officials, and health professionals accounted for only 12 percent of the sources mentioned by respondents. These findings are supported by a recent Roper Reports poll which found that television (50 percent) and newspapers (40 percent) clearly dominate the field of sources considered to be most persuasive in reaching people about environmental problems (The Roper Organization, Inc., 1988). Radio, magazines, and interpersonal sources were cited by fewer than 1 in 7 respondents. These results suggest that environmental risks have not yet reached the salient level in day-to-day conversation.

Table 8 (page 47) illustrates the community-by-community breakdown of the various sources of respondents' most recent environmental information. One can see that a mixture of broadcast and print media is used by most of our respondents. The effects of various media on consumers have different implications. Atkin (1981) found that "television is generally the most influential medium in this country, followed by newspapers, radio, and magazines" (p. 277). However, in a recent review of persuasion studies, McGuire (1985) notes that television is regarded as more believable, but information and attitudes are influenced more by the print medium.

Content of Recent Information

In addition to asking respondents where they had recently heard or read about environmental risks, we also asked them about the content of this recent information. Responses ranged from major environmental issues such as transportation/storage/disposal of hazardous substances to debates about locations of chemical treatment plants, waste disposal plants, and incinerators, as well as local issues such as spraying chemicals for controlling mosquitos and new procedures for dealing with chemicals at respondents' places of business.

Since the vast majority of these issues reached the respondents via the mass media, we simultaneously tracked news stories in the national print media as well as the local print outlets in each of the six communities during the interviewing period. In this way, we were able to match newspaper coverage of

environmental issues with the issues mentioned by respondents in the survey. Table 9 (page 48) shows the issues most often mentioned by respondents as being the topic of recent environmental information: chemical fires, transportation/isolation of waste, intentional/illegal dumping of hazardous materials, and ocean pollution. The table also illustrates the percentage of responses for each of these issues by community.

During the interviewing period, a fire in a major chemical company in East Durham, North Carolina, forcing an evacuation of over 70 people in a five-block area surrounding the plant, made front page news in the Durham Morning Herald. As can be seen, 60 percent of the Durham respondents who indicated having read or heard about environmental risks within the previous week specifically mentioned a chemical fire. Similarly, the Department of Energy had been attempting to open a Waste Isolation Pilot Plant (WIPP) in Albuquerque, New Mexico, to the dismay of many citizen groups. The issue was covered in several news stories and editorial pieces in the Albuquerque Journal during the first week of August. Table 9 (page 48) shows that 70 percent of the Albuquerque respondents who indicated having read or heard something about the environment within the week previous to the interview specifically mentioned the WIPP controversy. Finally, during the late summer months, potentially infectious medical wastes were routinely washing up on East Coast shores. The problem was covered in the national newspapers as well as news magazines, such as Time and Newsweek. Table 9 (page 48)

shows that over 40 percent of the Middlesex County respondents who indicated having read or heard something about the environment in the previous week specifically mentioned intentional/illegal dumping of hazardous materials or ocean pollution in general. This analysis illustrates the penetration of news stories within the public and the retention of details by the respondents.

Interestingly, the Durham chemical fire was reported in three front page news stories including pictures on August 1-- directly in the middle of the interviewing period for Durham (July 18 - August 14). The play that this story received apparently spurred the recall of our respondents. However, during this same four-week period, the majority of the environmental stories covered by the Durham press concerned hospital waste washing up on the beaches of North Carolina. In fact, at least three front-page stories on August 10 and 11 covered ocean dumping of hospital waste. Interestingly, only 7 percent of our respondents mentioned polluted beaches when asked what they had read or heard about in the previous week. Evidently, the chemical fire was the most memorable environmental event during the interviewing period for the Durham respondents, possibly because of its more local and dramatic character.

Perceptions of Information Sources

In addition to this open-ended question about sources of environmental information, respondents were also asked to indicate their utilization of several information sources and to

evaluate their trustworthiness and perceived expertise. Table 10 (page 49) shows the results of these evaluations.

As can be seen, most respondents received information about the risks of chemicals in their community from news reporters. This finding is supported in national polls conducted by Roper Reports in the summer of 1988, in which journalists were cited by 51 percent of the respondents as the source they depend on to keep them informed about environmental issues (The Roper Organization, Inc., 1988). However, in our survey news reporters were perceived as being less knowledgeable than nearly all other sources about environmental issues. One possible explanation of this finding may be that respondents realize that reporters receive their information from the environmental scientific community, thereby gaining their knowledge from outside experts. In this case, news reporters serve as a channel or conduit of environmental information from the expert community to the public. Rogers (1983) notes that "it is often difficult for individuals to distinguish between the source of a message and the channel that carries the message" (p. 197). In this survey, however, it appears that respondents may be able to distinguish between the source and the channel when it relates to news reporters. Respondents may receive their information from news reporters but realize that the reporters themselves are not environmental experts.

Environmental groups received high rankings in two of the three categories. They are seen as very knowledgeable and are

trusted by the respondents. However, fewer respondents (21 percent) are receiving "a lot" of information from environmental groups.

The survey results concerning chemical industry officials and health professionals as sources of environmental information are interesting. Chemical industry officials are perceived by respondents as having the most knowledge concerning the risks of chemicals in the community but are not seen as very trustworthy. This finding is supported by the qualitative research being conducted in conjunction with the baseline survey. Focus groups with the general public in several communities show that chemical companies (along with elected officials and government agencies) are consistently viewed as the least credible sources of information (Institute for Health Policy Analysis, 1988).

Conversely, health professionals have the highest trust level but are used by the fewest respondents for environmental information and are not seen as very knowledgeable about the risks of chemicals in the community. Previous research on source credibility supports these findings. McGuire (1985) cites a 1981 opinion poll that found that "science, medical, and academic groups elicit a high degree of [trustedness], the military, police and judiciary somewhat less, followed by business and media leaders, with political officeholders and labor union officials trusted still less" (p. 263). Focus groups with the general public confirm a desire to have health professionals involved in environmental information. When asked where they

would like to find information about the environment, physicians' offices were mentioned by many participants along with schools, PTAs, drugstores, and libraries (Institute for Health Policy Analysis, 1988).

Respondents' perceptions of information sources also illustrate the view that the government (federal, state, and local) is perceived as very knowledgeable about chemical risks, but the respondents are not receiving very much government information and are not quite sure whether to trust the government. Interestingly, local emergency planning committees (LEPCs) seem to hold a favored position among information sources. They appear to be very trustworthy and knowledgeable to the respondents, who may view the LEPC as a community group, not a quasi-governmental organization. Considering that most of the LEPCs have yet to communicate to the public about Title III data or their emergency plans, these results imply that LEPCs will not have difficulty disseminating their information when the time comes. On the other hand, LEPCs may have a lot to lose if they fail to communicate this risk information well.

Notification Procedures

It was interesting to find that the overwhelming majority of respondents think that they would receive their first notification of a large spill or release of hazardous chemicals in their community from the media (82 percent). Television news would be the specific media source for the largest group (45

percent) of these respondents, with radio news (30 percent) the next likely media source.

Table 11 (page 50) shows the source of emergency notification by each of the six communities. As one can see, Middlesex County respondents tend to rely on local officials for their emergency warning notification more so than respondents in the other communities. Still, almost three-quarters (72 percent) of the Middlesex County respondents look toward the media to notify them of a chemical emergency. It is interesting to note that only 26 percent of the Middlesex County respondents depend on television news, while 60 percent of the Cincinnati respondents cited television news. Racine and Middlesex County residents appear to rely on local officials and newspapers more than respondents in the other communities. These differences in Middlesex County may be due to the fact that most television news coverage received in Middlesex County is actually New York City coverage rather than local coverage.

Table 12 (page 51) illustrates the breakdown by age and education level of those sources mentioned by respondents as providing primary notification of a chemical emergency in their community. It appears that those with higher education levels rely on media sources more than those with a high school education or less (85 percent v. 78 percent). However, if we examine the specific media sources, we see that this difference is the greatest concerning radio news. Thirty-five percent of those with more than a high school education think that they will

receive first notification of a chemical emergency on the radio news, compared to only 24 percent of those with a high school diploma or less. It also appears that older respondents (over 50) rely more on local officials for emergency notification (14 percent) and less on the media (75 percent) than do the younger respondents.

TABLE 8

Source of Recent Chemical Risk Information
(Percent)

	<u>Total</u>	<u>Rich</u>	<u>Dur</u>	<u>Alb</u>	<u>Cin</u>	<u>Middle</u>	<u>Rac</u>
Newspapers	76	66	80	76	60	88	75
Local TV News	62	73	74	73	68	35	34
National TV News	11	9	3	7	6	30	4
Radio	19	19	16	17	22	27	11
Interpersonal*	12	7	11	6	20	15	19

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* Combination of friends or neighbors, local, state, and federal government officials, family members, town meetings, and doctors or health professionals.

Unless otherwise noted, all differences discussed in the text and tables are significant at $p < .05$. Percentages reported in the text are based on the entire sample (N=3129) except where noted.

TABLE 9

Content of Recent Chemical Risk Information
(Percent)

	<u>Total</u>	<u>Rich</u>	<u>Dur</u>	<u>Alb</u>	<u>Cin</u>	<u>Middle</u>	<u>Rac</u>
Heard/Read in Past Week	21	14	36	30	17	27	8
--- --- ---	---	---	---	---	---	---	---
What Did You <u>Read/Hear? *</u>							
Chemical Fire	17	--	60	--	1	1	2
Transportation/ Isolation of Waste (WIPP)	18	9	1	70	7	2	2
Intentional/ Illegal Dumping	15	13	6	3	11	42	15
Ocean Pollution	19	26	7	3	24	48	13

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* Percent of total respondents in each community who had heard/read about risks in the past week. Comparisons of trends only; no significance test conducted.

TABLE 10
Perception of Information Sources*

	<u>Amount Rec'd % A Lot</u>	<u>Trust % A Lot</u>	<u>Knowledgeable % Very</u>
News Reporters	27	27	17
Environmental Groups	21	40	53
Friend/Relatives	7	34	9
LEPC	6	28	33
State Government	6	12	29
People You Know Who Work for a Chemical Industry	5	19	30
Local Government	5	11	22
Federal Government	4	12	36
Chemical Industry Officials	3	8	58
Doctors	3	46	27

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* Comparisons of trends only; no significance tests conducted.

TABLE 11

Notification Procedures by Community
(Percent)

	<u>TOT</u>	<u>Rich</u>	<u>Dur</u>	<u>Alb</u>	<u>Cin</u>	<u>Mid</u>	<u>Rac</u>
All Media	82	88	84	89	88	72	75
TV News	45	49	53	50	60	26	32
Radio News	30	34	24	34	22	35	32
Newspapers	6	3	3	3	4	9	10
Emergency Broadcast System	2	1	4	2	<1	<1	1
Local Officials*	10	6	11	5	5	18	14
Siren/Warning Signals	2	1	2	2	4	1	4
Personal Contact**	2	1	1	2	1	2	2

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* Local officials include police, firefighters, and other local emergency officials.

** Personal contact includes friends, relatives, and neighbors.

Unless otherwise noted, all differences discussed in the text and tables are significant at $p < .05$. Percentages reported in the text are based on the entire sample (N=3129) except where noted.

TABLE 12

Notification Procedures by Education and Age
 (Percent)

	<u>Education</u>		<u>Age</u>		
	<u>HS<</u>	<u>>HS</u>	<u><30</u>	<u>30-50</u>	<u>>50</u>
All Media	78	85	87	85	75
TV News	48	42	50	43	42
Radio News	24	35	28	34	27
Newspapers	5	6	6	7	4
Emergency Broadcast System	<1	2	2	1	2
Local Officials*	13	8	7	9	14
Siren/Warning Signals	3	2	1	2	4
Personal Contact**	2	1	3	2	<1

=====

* Local officials include police, firefighters, and other local emergency officials.

** Personal contact includes friends, relatives, and neighbors.

Unless otherwise noted, all differences discussed in the text and tables are significant at $p < .05$. Percentages reported in the text are based on the entire sample (N=3129) except where noted.

PERCEIVED KNOWLEDGE

Self-Assessed Knowledge

Respondents were asked how much they felt they knew about several environmental issues in their area. Eight topics were probed, covering both the risks of chemicals and activities to protect or correct hazards. For each topic, respondents were asked to signify if they felt they knew a lot, a little, very little, or nothing.

As shown in Table 13 (page 60), for seven of the eight topic areas probed, more respondents felt they knew very little or nothing than felt they knew a lot or a little. The one exception was quality of the drinking water, where 65 percent indicated that they felt they knew a little (41 percent) or a lot (24 percent) about the subject. For the other topic areas, less than 15 percent of the people surveyed said they knew a lot about the topic. This low level of perceived knowledge was evident for topics related to the risk of chemicals (location where chemicals are stored or used, releases of chemicals into the atmosphere, hazardous waste facilities, and the risk of chemicals in general) and even somewhat lower for topics related to chemical hazard clean-up and protection (community right-to-know laws, emergency preparedness plans, and activities to clean up accidental spills of hazardous materials). Awareness about emergency preparedness plans ranked the lowest of the eight areas probed in perceived knowledge levels. Almost three in ten (29 percent) of the respondents stated that they knew nothing about this topic.

There were several highly consistent relationships indicated in the demographic analyses. On all of the topic areas probed, males stated a small but consistently higher mean level of perceived knowledge than females (see Table 14, page 61). It is unclear if males actually know more about these topics or they are more confident in their knowledge levels. In an era of decreased time for joint family activities, information search about different topics may be becoming highly specialized within the family and assigned to one partner. This factor may have important communication planning ramifications if gender-related role specialization is a factor in receptivity to information about environmental risks.

As shown in Table 14 (page 61), individuals with at least some college education had higher mean scores than individuals with a lower level of education in all the topic areas probed. Again, it is unclear if this is reflective of actual knowledge levels or of confidence in one's perceived knowledge. Age was also related to mean perceived knowledge levels, but in a less consistent fashion. In all the topic areas, individuals under 30 years of age had the lowest level of perceived knowledge. Middle-aged respondents (30 to 50 years old) scored highest on items related to the risks of chemicals (location of facilities that store or use chemicals, chemical releases, hazardous waste facilities, chemical risks in general) as well as on the topic of community right-to-know laws. Older respondents (over 50 years of age) had the highest perceived knowledge levels of protective

activities (emergency preparedness plans, activities to clean up accidental spills) and of the quality of the drinking water.

Among communities, the results indicate that in both Durham and Middlesex County, higher degrees of reported knowledge on several of the items related to chemical risks were found than in the other communities (see Table 15, page 62). Durham respondents scored first or second highest among the six communities on items measuring locations of facilities using or storing chemicals, hazardous waste facilities, and chemical risks in general. Middlesex County respondents scored first or second highest on items measuring the location of facilities using or storing chemicals, chemical releases in the atmosphere, and chemical risks in general.

In addition, Durham respondents scored highest of all the respondents on items about self-assessed knowledge about emergency preparedness plans and activities to clean up accidental spills. They scored second highest on perceived knowledge about community right-to-know laws. Middlesex respondents scored highest on community right-to-know laws but lowest on perceived knowledge about emergency preparedness plans and next to lowest on perceived knowledge about activities to clean up accidental spills. Thus, while both Durham and Middlesex County respondents had high scores on perceived knowledge about environmental risks, Durham respondents appear to have balancing levels of perceived knowledge about corrective or protective activities. Middlesex respondents appear to be more

confident in their knowledge about right-to-know laws and chemical risks, but not about activities the chemical industry or government has undertaken to correct the problem of toxic chemicals. These results may partially explain differing perceptions about the risks of chemicals within the respective communities discussed earlier.

Opinion of Community Activities

Self-assessed knowledge provides an indication of what respondents believe they know. To obtain a measure of how knowledge is projected in order to derive conclusions about communities, respondents were asked to signify whether or not community based activities were taking place to notify the public about and protect it from environmental risks. Six areas of action were probed: existence of an emergency preparedness plan, training of police and fire department personnel to respond to chemical emergencies, local businesses notifying the community about use and storage of toxic chemicals, active environmental groups discussing risks, local governments working on the problem of chemicals in the environment, and local businesses reducing the amount of toxic chemicals they store or use.

As shown in Table 16, page 63, the majority of respondents (81 percent) believed that the police and fire departments had trained personnel to handle environmental emergencies. Many respondents also believed that there was an active set of environmental groups (60 percent) and an active government (59 percent) dedicated to environmental issues. Over half (54

percent) believed there was an emergency preparedness plan in existence.

Local businesses received the worst evaluation. Less than half of the respondents (47 percent) believed that local businesses had reduced the amount of toxic chemicals they use and only about one-quarter (27 percent) believed that local businesses had notified the community about the toxic chemicals they use, store, or release. The latter result is particularly germane to Title III legislation. By law, at the time of this survey, local businesses were required to notify the community about the level of toxic chemical usage, storage, and release. This measure can be better evaluated in follow-up surveys to determine public access and response to information mandated by the legislation.

Differences between communities are consistent with previously discussed results (see Table 16, page 63). On every aspect of community activity probed, a lower percentage of Middlesex respondents reported the existence of protective activity than in any of the other communities. In Durham, on the other hand, a consistently higher percentage of respondents reported the existence of protective activities. Durham scored the highest among all the communities in terms of the percentage of respondents reporting existence of environmental group activity (76 percent), local government activity (66 percent), the existence of an emergency preparedness plan (66 percent), and

the activity of local businesses in notifying the community about toxic chemical use, storage, or release (33 percent).

There were also individual results that may reflect particular attitudes within each community. For example, Richmond and Durham each reported a high percentage of individuals who believed the police and fire departments had trained personnel (89 and 86 percent, respectively) but a smaller percentage who believed the local government had been active (53 and 66 percent, respectively). In Racine, the business community was viewed more positively than in other localities as a high percentage of respondents believed that local businesses had reduced their storage and use of toxic chemicals (60 percent) and had notified the community about the use of toxic chemicals (32 percent).

Several demographic differences also exist that may reflect differing views of the various institutions involved (see Table 17, page 64). Individuals with higher educational attainment were less likely to view government or business initiatives as underway but were more likely to view environmental groups as being active. More highly educated individuals are apparently more skeptical of government and business institutions. On the other hand, with age people may become more accepting of these institutions. A significant positive relationship exists between age and the percentage of subjects perceiving government or business-initiated activities as taking place. The only exception to this trend was on the item measuring whether or not

an emergency preparedness plan was in place. As this item is, perhaps, the most objectively verifiable, it may reflect factual knowledge to a greater extent than the other items, which may be more susceptible to influences caused by respondent attitudes about the institutions involved.

TABLE 13

Perceived Knowledge About Chemical Risks:
Percent Distribution for Item Responses

	<u>Perceived Knowledge Level</u>			
	<u>A lot</u>	<u>A little</u>	<u>Very little</u>	<u>Nothing</u>
Location Where Chemicals Are Stored or Used	12	33	33	22
Release of Chemicals	8	36	37	20
Quality of Drinking Water	24	41	26	9
Right-to-Know Laws	11	34	35	20
Emergency Preparedness Plans	9	28	33	29
Hazardous Waste Facilities	10	33	34	23
Activities to Clean up Spills	11	36	32	21
Risk of Chemicals	13	41	32	14

=====

Unless otherwise noted, all differences discussed in the text and tables are significant at $p < .05$. Percentages reported in the text are based on the entire sample (N=3129) except where noted.

TABLE 14

Mean Perceived Knowledge Levels By Key Demographics*

	<u>Gender</u>		<u>Education</u>		<u>Age</u>		
	<u>Male</u>	<u>Female</u>	Some HS or coll. <u>less or ></u>		<u><30</u>	<u>30-50</u>	<u>>50</u>
Location Where Chemicals Are Stored or Used	2.49	2.21	2.15	2.49	2.37	2.43	2.21
Release of Chemicals	2.41	2.21	2.14	2.43	2.28	2.36	2.26
Quality of Drinking Water	2.89	2.71	2.64	2.91	2.70	2.81	2.87
Right-to-Know Laws	2.45	2.26	2.23	2.44	2.27	2.40	2.35
Emergency Preparedness Plans	2.20	2.12	2.14	2.17**	2.07	2.17	2.23
Hazardous Waste Facilities	2.36	2.23	2.16	2.39	2.21	2.33	2.32
Activities To Clean-up Spills	2.42	2.29	2.23	2.44	2.19	2.38	2.44
Risk of Chemicals	2.62	2.45	2.34	2.67	2.45	2.60	2.49

=====

* Scale Range = 1 to 4
 1 = Know nothing
 2 = Know very little
 3 = Know a little
 4 = Know a lot

** Comparisons not significant at $p < .05$.

Unless otherwise noted, all differences discussed in the text and tables are significant at $p < .05$. Percentages reported in the text are based on the entire sample (N=3129) except where noted.

TABLE 15

Mean Perceived Knowledge Levels By Community*

	<u>Community</u>						
	<u>Total</u>	<u>Rich</u>	<u>Dur</u>	<u>Alb</u>	<u>Cin</u>	<u>Middle</u>	<u>Rac</u>
Location Where Chemicals Are Stored or Used	2.35	2.25	2.50	2.31	2.36	2.44	2.27
Release of Chemicals**	2.31	2.26	2.30	2.31	2.35	2.40	2.26
Quality of Drinking Water	2.80	2.65	2.80	2.91	2.81	2.76	2.87
Right-to-Know Laws	2.36	2.21	2.41	2.33	2.40	2.44	2.34
Emergency Preparedness Plans	2.16	2.09	2.36	2.18	2.16	1.04	2.24
Hazardous Waste Facilities	2.30	2.14	2.38	2.40	2.32	2.31	2.24
Activities To Clean-up Spills	2.35	2.32	2.45	2.43	2.35	2.30	2.29
Risk of Chemicals	2.54	2.45	2.61	2.55	2.55	2.62	2.44

=====

* Scale Range = 1 to 4

1 = Know nothing

2 = Know very little

3 = Know a little

4 = Know a lot

** Comparisons not significant at $p < .05$.

Unless otherwise noted, all differences discussed in the text and tables are significant at $p < .05$. Percentages reported in the text are based on the entire sample (N=3129) except where noted.

TABLE 16

Percent of Respondents Indicating Protective
Activity Has Taken Place in Community

	<u>Total</u>	<u>Rich</u>	<u>Dur</u>	<u>Alb</u>	<u>Cin</u>	<u>Middle</u>	<u>Rac</u>
Police & Fire Trained Personnel	81	89	86	84	80	67	82
Active Environmental Groups	60	51	76	68	64	52	53
Local Government Working on Problem	59	53	66	64	63	50	57
Emergency Preparedness Plan Exists	54	61	66	59	49	38	51
Local Business Reduced Chemicals	47	47	47	40	48	37	60
Local Business Notified Community	27	28	33	25	26	16	32

=====

Unless otherwise noted, all differences discussed in the text and tables are significant at $p < .05$. Percentages reported in the text are based on the entire sample (N=3129) except where noted.

TABLE 17

Percent of Respondents Indicating Protective
Activity Has Taken Place by Major Demographics

	<u>Gender</u>		<u>Education</u>		<u>Age</u>		
	<u>Male</u>	<u>Female</u>	<u>HS or less</u>	<u>Some Coll. or ></u>	<u><30</u>	<u>30-50</u>	<u>>50</u>
Police & Fire Trained Personnel	84	79	83	81*	77	81	86
Active Environmental Groups	61	60*	57	63	55	60	65
Local Government Working on Problem	60	58*	61	57	52	56	68
Emergency Preparedness Plan Exists	58	51	53	54*	50	56	55
Local Business Reduced Chemicals	47	47*	50	45	39	44	58
Local Business Notified Community	29	25	29	25	26	25	31

=====

* Comparisons not significant at $p < .05$.

Unless otherwise noted, all differences discussed in the text and tables are significant at $p < .05$. Percentages reported in the text are based on the entire sample (N=3129) except where noted.

ATTITUDES ABOUT ENVIRONMENTAL ISSUES

To examine respondents' beliefs about the risk of chemicals in the environment as well as related beliefs about the role of business, government, and their own involvement with environmental health issues, a thirteen-item attitude scale was constructed. Subjects were asked whether they strongly agreed, somewhat agreed, somewhat disagreed, or strongly disagreed with each of the statements posed.

Views about Government Action

Two items measured views about governmental activity. Respondents were asked to evaluate the overall activity of the federal government in cleaning up the environment. As shown in Table 18 (page 78), 58 percent disagreed that the federal government was doing a good job. One-third (33 percent) of the sample disagreed strongly. Appendix C, Q.21, shows further community and demographic differences. For instance, individuals in Middlesex County (43 percent) were more likely to disagree strongly that the federal government was doing a good job than respondents in the other communities. The highest level of agreement with the statement (48 percent) came from respondents over fifty years of age. Individuals with a high school diploma or less (44 percent), and those from Richmond (42 percent), Racine (45 percent), and Cincinnati (43 percent) were also more likely than the other subjects to agree with the statement. As speculated earlier, older individuals and those with lower levels of education may be more accepting of governmental institutions.

The higher levels of government acceptance in Richmond, Racine, and Cincinnati must be viewed on a relative basis with the strong negative opinions emanating from Middlesex County. Even in these three communities, more respondents disagreed with the statement than agreed.

Attitudes about the local government's interest in what the public has to say about chemicals in the area were somewhat more positive than attitudes about the federal government's clean up of the environment. Overall, 59 percent of the respondents agreed that local officials were interested in the public's view. Approximately two-thirds of the individuals in Racine (67 percent) and Durham (60 percent) agreed that local officials were interested, whereas only half of the respondents in Middlesex (52 percent) agreed (see Appendix C, Q.21). As with attitudes about the federal government, people 50 years of age or older were more likely to view the local government in a positive light (66 percent agreed). However, in contrast with the results for the federal government, those with a higher level of education were more likely to agree (61 percent) than those with a high school diploma or less (56 percent).

Views about Local Businesses

Respondents were asked if they agreed or disagreed with the statement that local businesses were very careful with dangerous chemicals. Fifty-three percent of the respondents disagreed with the statement. The geographic and demographic correlates of views about local businesses were highly similar to views about

the federal government's activity (see Appendix C, Q.21). Individuals in Middlesex (65 percent) were more likely to disagree that local businesses are careful with chemicals, while those in Racine (56 percent) and Durham (48 percent) were more likely to agree with this statement. Individuals over 50 years of age (53 percent) and those with a high school diploma or less (50 percent) were more apt to signify agreement that local businesses were careful using dangerous chemicals.

Secrecy of Chemical Releases

Respondents were asked to respond to the statement, "The only time the public hears about the release of toxic chemicals is when the problem is so big it can't be kept secret anymore." A strong majority (86 percent) agreed with this statement. It appears that the public views chemical releases as quite serious (see below) and also views business and government with some distrust. Individuals in Middlesex County (90 percent) were somewhat more likely to agree about secrecy than were individuals in Durham and Albuquerque (both approximately 82 percent) (see Appendix C, Q. 21).

The Risk of Chemicals

Overall Safety: Several elements of the public's views about the risks of environmental chemicals were queried in a series of attitude items. Two items were posed to assess general views about the safety of chemicals. Respondents were asked to agree or disagree with the statement, "we should assume a chemical is safe unless tests prove it is dangerous." A large majority of

respondents (70 percent) disagreed and about half the sample (51 percent) disagreed strongly. It is clear that the public views "chemicals" as potentially dangerous and not to be considered lightly. Older respondents viewed chemicals as inherently safer as 43 percent of the individuals over age 50 agreed somewhat (21 percent) or agreed strongly (22 percent) with the statement.

To provide a more complete frame of reference for the evaluation of chemical risks, respondents were asked whether they agreed or disagreed with the statement, "chemicals have improved our health more than they have harmed our health." Clearly, evaluation of this statement is highly dependent on how subjects define the term "chemical." No stipulations or clues were provided in the context of the statement as respondents were permitted to provide their own definition. Given the context of the previous items in the questionnaire, it is likely that respondents would be already thinking about hazardous chemicals. It is unknown, however, how many respondents also considered in their responses other types of chemicals, such as those produced for direct health effects (e.g., pharmaceuticals).

Half (50 percent) of the sample agreed with the statement that chemicals have provided more benefit than harm to our health. Males (58 percent) and college educated respondents (56 percent) were most likely to agree with the statement, perhaps reflecting a broader definition of the term "chemicals" among these subgroups (see Appendix C, Q.21). Respondents from Middlesex County (43 percent) indicated the lowest level of

agreement, again reflecting a strong negative halo effect towards environmental chemicals.

Chemical Releases: To obtain a more specific set of opinions about the release of chemicals into the air, water, or soil, two questions were posed covering the topics of chemical releases in general and planned releases. In terms of general releases, subjects were asked to respond to the statement, "Any release of chemicals into the air, water, or soil is not acceptable."

As shown in Table 18 (page 79), about two-thirds of the sample (63 percent) agreed with this statement, 42 percent agreeing strongly. The trends evident in attitude measures discussed above were also evident in responses to this question. There was a strong preponderance of agreement in Middlesex County (71 percent agreed), for instance (see Appendix C, Q.21). Females (67 percent) had a higher agreement rate than males (59 percent), perhaps reflecting greater risk aversion for females, and those with a high school diploma or less (68 percent) had a higher agreement rate than those with at least some college education (60 percent), perhaps reflecting greater cognitive ability among the more educated in recognizing that some chemical releases may be acceptable and others unacceptable. Respondents over 50 years old, who had indicated greater tolerance to chemical risks in earlier questions, also had a higher rate of agreement (66 percent) than the other age categories. Perhaps older subjects view the issue as evaluating the performance of groups charged with controlling chemical releases rather than a

risk tolerance question. Alternatively, older respondents may be more subject to "yea saying" biases and tend to agree with questionnaire items regardless of question content. The lowest rate of agreement with this statement was evident from respondents in Richmond, where only 57 percent agreed. This may reflect a greater acceptance of chemical industry practices or understanding of chemical release practices.

To determine how respondents view planned releases, subjects were asked to respond to the statement, "Planned releases of chemicals into the air, water, or soil are generally safe." As shown in Table 18 (page 79), there was strong disagreement with this statement as 71 percent of the respondents disagreed, with 43 percent disagreeing strongly. The somewhat higher level of disagreement to this question, compared to the agreement levels indicated for the previous question, suggests that "safety" and "acceptance" are viewed differently. Therefore, thresholds for agreement or disagreement for these questions may be slightly different.

The trends evident in the previous question were also evident in the community and demographic analyses of this question (see Appendix C, Q.21). There was a preponderance of disagreement from subjects in Middlesex County (78 percent), females (74 percent), and those with a high school diploma or less (74 percent). The one group that was less strongly negative toward planned chemical releases than toward chemical releases per se were those over age 50, as 68 percent of this cohort

disagreed, compared to 74 percent of those 30 to 50 years old. It appears from the results of these two questions that the public does not discriminate between accidental releases and planned releases; both are judged to be unsafe and are mostly viewed as unacceptable. The somewhat greater tolerance for planned releases in Richmond (although still viewed as unsafe and unacceptable to the majority of Richmond subjects) may be due to greater acceptance and trust of the chemical industry (see Appendix C, Q.21). In the absence of a clear understanding of a message, the public may be more dependent on the credibility of the source of both the message and the potential hazardous activity.

Chemical Exposure: Two questions were posed to subjects to obtain their views about exposure to chemicals. In an effort to measure understanding of dose-response relationships, interviewees were asked to respond to the statement, "it's not how much of a chemical you are exposed to that matters to your health, it's whether or not you are exposed at all."

Almost two-thirds (63 percent) of the respondents agreed with this statement. It is clear that, for certain chemicals, exposure to even small doses can be quite hazardous, and theoretically, a carcinogen is still a carcinogen even at very low exposure levels. However, for the majority of chemical risks, the amount of chemical exposure is an important variable. Only about one-third of the respondents appeared to hold an opinion that was consistent with this dose-response relationship.

The greatest levels of disagreement with this item were in Durham (40 percent) and Cincinnati (38 percent), while Richmond respondents had the lowest level of disagreement (32 percent) (see Appendix C, Q.21). As respondents in all three cities have generally positive attitudes about their community, it is doubtful that responses to this question reflect global attitudes about immediate chemical hazards. It may be more reflective of long-term fears and individual interpretations of chemical risk hazards. College-educated respondents (37 percent) were more likely to disagree, perhaps reflecting greater understanding of chemical hazards. Males (38 percent) and respondents under 30 years of age (41 percent) were also more likely to disagree, perhaps reflecting more acceptance of the concept that dose is important.

A second statement about chemical exposure was asked to provide an indication of how the public views the relationship between chemical exposure and cancer. Respondents were asked to respond to the statement, "If a person is exposed to a chemical that can cause cancer, then that person is likely to get cancer later in life." While the former question dealt with the dose-response relationship, this question assessed the degree to which the public understands absolute risk levels. Epidemiological studies indicate that most chemicals that are known to be carcinogens tend to increase cancer risks relative to a control group. However, absolute risk levels are usually quite small (in the range of one in several thousand).

Results for this question indicate that appreciation of low absolute levels of risk is rare. Only one-fourth (25 percent) of the respondents disagreed with this statement. It should be noted that people may agree with the statement for several reasons (we did not directly ask if exposure causes cancer). Individuals may be aware of relatively high rates of cancer and they may have viewed an initial exposure as a contributory cause rather than an absolute cause.

The greatest level of appreciation for absolute risk levels (disagreement with this question) came from college-educated individuals (30 percent), males (28 percent), and people who live in Albuquerque (29 percent). Specific and general knowledge about chemical risks, less risk aversion, and lower levels of chemical risks faced in the community may explain these trends. It is important to note, however, that even within these subgroups far more individuals agree than disagree with this question (see Appendix C, Q.21).

Level of Risk: As absolute risk levels are usually quite small, subjects were asked to respond to a statement that measured how this low level of risk influenced their level of concern. The statement was, "There are some chemical risks that are too small to worry about."

As shown in Table 18 (page 79), many respondents (56 percent) disagreed with this statement. The pattern in demographic analyses was similar to that of items measuring general attitudes about chemical risks. Higher levels of

disagreement were found among respondents in Middlesex County (62 percent), among those with a high school diploma or less (62 percent), and among females (62 percent) (see Appendix C, Q.21). The highest level of agreement with the item was expressed by those over 50 years of age, as only 53 percent disagreed with the item.

Toxic Wastes: Specific attitudes about toxic wastes were probed by asking subjects to respond to the statement, "Burying toxic wastes in landfills is not a serious problem." The overwhelming majority of the respondents disagreed (85 percent). The demographic analyses (see Appendix C, Q.21) indicated that attitudes about toxic wastes are reflective of patterns seen with other questions about chemical risks. Respondents from Middlesex County (90 percent) were most negative in their disagreement. The lowest level of disagreement was evident in those over age 50, where 79 percent disagreed. Clearly, respondents view burying toxic wastes as a very serious problem.

Personal Involvement

One question in the attitude scale was used to measure how personally involved subjects believed themselves to be in environmental risk decisions. They were asked to respond to the statement, "I feel I am involved in environmental decisions that may affect my health." As shown in Table 18 (page 78), there was a fairly even distribution of response to this item as 43 percent agreed and 56 percent disagreed. Respondents in Racine had the

highest level of agreement with this statement (49 percent) among the communities surveyed (see Appendix C, Q.21). This finding is consistent with results related to views about local government interest in what people have to say about environmental chemicals, where Racine also had the most positive views. Older respondents (49 percent) and those with a high school diploma or less (51 percent) also expressed relatively high levels of personal involvement. This finding may reflect lower expectations about involvement levels or a lack of alienation that may be present in other age or education cohorts.

Respondents' Evaluation of Safety Performance

Although attitudes about local business and government were assessed in previously discussed questions, the dimensions on which these agencies were evaluated differed. To obtain a comparative evaluation, six groups with responsibility for environmental safety were presented to respondents. Ratings of competence at keeping the community safe from the risks of hazardous chemicals (excellent, good, fair, or poor) were requested for each of the organizations.

As shown in Table 19 (page 80), local environmental groups received the best ratings, as half the sample (50 percent) rated them good or excellent. The federal Environmental Protection Agency (42 percent) and the Local Emergency Planning Committee (39 percent) followed in the percentage of respondents giving good or excellent job ratings. Local and state governments received identical good or excellent job ratings (33 percent).

Local businesses received the worst rating among those evaluated, with only one-quarter (25 percent) of the sample giving them good or excellent job ratings. None of these groups is overwhelmingly viewed as doing an excellent job. Clearly, respondents have a continuum of approval ratings, with environmental groups the highest and local businesses the lowest. It is important to note, however, that evaluations may differ due to differences in the vividness of the stimuli under evaluation. Participants have more favorable impressions if there is a clear stimulus brought to mind (the federal EPA or an environmental group that has been active) and less favorable if the stimulus is vague or unclear (which agency of local government, which local business). Thus specific institutions may be rated more highly than general institutions.

Although only 8 percent of the participants said they were unfamiliar with the LEPC or did not know how to evaluate it, it is uncertain if the remaining participants were familiar with it. It is likely that some participants may have been evaluating the group based upon its name. In retrospect, adding a nonexistent group to the list would have given us a better sense of false positives. However, the LEPC, regardless of subject familiarity, was generally seen as doing a good job (at least better than local government). Choice of the name (with emphasis on the local nature of the group) may be a fortuitous choice of terminology.

Examination of the demographic analyses indicated a

remarkable consistency of evaluations across different agencies (see Appendix C, Q.25). Middlesex County residents gave a lower mean job rating to each of the six agencies evaluated compared to all of the other communities. Females gave higher job ratings than males to all of the agencies. Those with at least some college education gave lower job ratings to each of the agencies than those with a high school diploma or less. And those over 50 years of age gave higher job ratings than the other age cohorts to all but one of the agencies. The only exception to the age-related job ratings was the federal EPA, where younger respondents (under age 30) gave slightly higher job ratings.

TABLE 18

Percent of Subjects Agreeing/Disagreeing
With Attitude Items*

	<u>Agree Strongly</u>	<u>Agree Somewhat</u>	<u>Disagree Somewhat</u>	<u>Disagree Strongly</u>
Government:				
The federal govt. is doing a good job cleaning up the environment.	8	33	25	33
Local officials are interested in what the public has to say about chemicals in the area.	18	41	23	18
Business:				
Local businesses are usually very careful with dangerous chemicals.	13	32	28	25
Involvement:				
I feel I am involved in environmental decisions that may affect my health.	21	22	24	32
Secrecy:				
The only time the public hears about the release of toxic chemicals is when the problem is so big it can't be kept secret anymore.	65	20	8	6
Chemicals:				
We should assume a chemical is safe unless tests prove it to be dangerous.	14	16	18	51

TABLE 18 (continued)

	<u>Agree Strongly</u>	<u>Agree Somewhat</u>	<u>Disagree Somewhat</u>	<u>Disagree Strongly</u>
Chemicals (continued):				
Chemicals have improved our health more than they have harmed our health.	16	34	23	24
Any release of chemicals into the air, water or soil is not acceptable.	42	22	23	13
Planned releases of chemicals into the air, water or soil are generally safe.	5	22	28	43
It's not how much of a chemical you are exposed to that matters to your health; it's whether or not you are exposed at all.	39	24	17	19
If a person is exposed to a chemical that can cause cancer, then that person is likely to get cancer later in life.	38	36	18	7
There are some chemical risks that are too small to worry about.	17	26	21	35
Burying toxic wastes in landfills is <u>not</u> a serious problem.	6	8	16	69

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* Does not necessarily sum to 100 percent as don't know/refused responses are accounted for in overall percentages

Unless otherwise noted, all differences discussed in the text and tables are significant at $p < .05$. Percentages reported in the text are based on the entire sample (N=3129) except where noted.

TABLE 19

Percent Evaluating Environmental Agency Job Performance

	<u>Job Ratings*</u>			
	<u>Excellent</u>	<u>Good</u>	<u>Fair</u>	<u>Poor</u>
Local Government	4	29	49	17
Local Business	3	22	48	25
Federal EPA	5	37	42	14
State Government	4	29	51	15
LEPC**	5	34	41	12
Local Environmental Groups	8	42	39	8

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* May sum to less than 100% as this response includes don't know/refused responses

** Eight percent stated they did not know/never heard of this group

Unless otherwise noted, all differences discussed in the text and tables are significant at $p < .05$. Percentages reported in the text are based on the entire sample (N=3129) except where noted.

SELF-REPORTED PROTECTIVE BEHAVIORS

After asking participants to respond to questions concerning their knowledge about and attitudes toward environmental risks, we also inquired as to the behaviors they have engaged in or are currently engaging in that they feel will protect them from these risks or aid in a community effort to lower the risk. We asked about a variety of behaviors, from passive activities such as contributing money to an environmental cause, to active protective behaviors like drinking bottled water or moving from a certain neighborhood because of the risks to the local environment.

Thirty-seven percent of all of our respondents have contributed time or money to an environmental cause in the past (see Table 20, page 84). Twenty-nine percent of Albuquerque respondents have donated time or money to an environmental cause, whereas 42 percent of Middlesex County respondents have made donations. A wide difference exists in education levels of our respondents who have donated time or money. Forty-five percent of those respondents who have at least some college education have contributed time or money to an environmental cause, while only 25 percent of those with a high school diploma or less have donated. Those respondents in the middle age ranges (30-50 years) were more likely than the younger or older respondents to have donated time or money (see Table 21, page 85).

Several behaviors were included in our survey which can be considered information-seeking behaviors. Middlesex County

respondents appear to have engaged in the most information-seeking behavior. Twenty-five percent of the Middlesex County respondents attended a town or community meeting about environmental risks, 22 percent called or wrote to a government official about environmental risks, and 19 percent had gone to the library to find out more about the problem of environmental risks. These percentages are the highest for all six communities on these information-seeking behaviors. Respondents in Racine have engaged in the least amount of information-seeking about environmental risks of all six communities. Only 13 percent of Racine respondents have called or written to a government official and only 13 percent have visited the library to find out more about the problem. Table 20 (page 84) shows the percentages for all six communities.

Overall, it appears that those respondents with a higher level of education and those who are between 30 and 50 years old are most likely to engage in information-seeking behaviors regarding environmental risks. Additionally, for almost every information-seeking behavior, slightly more men than women indicated having engaged in them (see Appendix C, Q.28). Twenty-one percent of the male respondents had attended a community meeting compared to only 18 percent of females. Similarly, 17 percent of the male respondents had called or written a government official compared to 14 percent of females, and 17 percent of the males had visited the library compared to 14 percent of females.

Across the six communities, there was a wide range of respondents who have drunk bottled water because of risks in the environment. Consistent with other protective behaviors, 59 percent of the Middlesex County respondents drink bottled water. Large percentages of respondents in Cincinnati (48 percent) and Richmond (44 percent) also drink bottled water. However, the percent drops off significantly for the remaining three communities: Albuquerque (29 percent), Durham (23 percent), and Racine (19 percent). Consistent with other protective behaviors, those respondents who drink bottled water because of environmental risks are more educated (39 percent) and younger (under age 30 -- 38 percent; between 30-50 -- 40 percent) than the other respondents.

TABLE 20-

Respondents Engaging in Protective
Behavior by Community
(Percent)

	<u>Total</u>	<u>Rich</u>	<u>Dur</u>	<u>Alb</u>	<u>Cin</u>	<u>Middle</u>	<u>Rac</u>
Contributed Time or Money to an Environmental Cause	37	40	36	29	36	42	38
Used Bottled Drinking Water	36	44	23	29	48	59	19
Attended a Town or Community Meeting	20	14	24	21	16	25	17
Talked to Doctor*	20	20	18	18	21	21	19
Called or Written a Government Official	16	16	14	15	14	22	13
Gone to the Library to Find Out More About the Problem*	15	14	17	15	15	19	13
Moved or Chosen Not to Live in a Certain House	13	13	13	14	14	17	9

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* Comparisons not significant at $p < .05$.

Unless otherwise noted, all differences discussed in the text and tables are significant at $p < .05$. Percentages reported in the text are based on the entire sample (N=3129) except where noted.

TABLE 21

Age and Education Levels of Respondents
Engaging in Protective Behavior
(Percent)

	<u>AGE</u>			<u>Education</u>	
	<u>< 30</u>	<u>30-50</u>	<u>>50</u>	<u>HS < *</u>	<u>> HS **</u>
Contributed Time or Money to an Environmental Cause	28	44	32	25	45
Used Bottled Drinking Water	38	40	29	33	39
Attended a Town or Community Meeting	15	23	18	13	24
Talked to Doctor	19	23	15	17	22
Called or Written a Government Official	12	19	14	9	21
Gone to the Library to Find Out More About the Problem	15	19	10	9	20
Moved or Chosen Not to Live in a Certain House	15	16	6	10	15

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* High school diploma or less

** More than a high school diploma

Unless otherwise noted, all differences discussed in the text and tables are significant at $p < .05$. Percentages reported in the text are based on the entire sample (N=3129) except where noted.

REACTION TO HEALTH PROBLEMS

Risk perception is usually conceived as a cognitive, and occasionally emotional, activity. However, physical reactions which may be related to environmental events, and the interpretation of those reactions, may have important consequences for the way new threats to the environment are perceived. To measure the influence of physiological reactions, two series of questions were posed; one assessing minor, bothersome, physical reactions that the respondent personally experienced; the other assessing major, serious reactions that respondents or a member of their family experienced.

Bothersome Physical Reactions

Respondents were asked if they had experienced any of five health problems during the past month: headaches, nausea, shortness of breath, skin rashes, and irritation of the eyes, nose, or throat (see Appendix C, Q.48). People who responded affirmatively were then asked if they consulted the doctor for this problem and, secondly, if they thought the problem was caused by chemicals in the air, water, or soil. In this manner, we were able to measure the frequency of attribution of common physical reactions to chemicals in the environment, and the perceived severity of and/or concern about the reaction (as indicated by consulting a doctor for the problem).

Symptom Experience

As displayed in Table 22 (page 95), more than half of the respondents (60 percent) experienced at least one of the symptoms

in the past month. About one-third of the respondents experienced headaches (36 percent) and irritation of the eyes, nose, or throat (37 percent). The other symptoms were experienced at less than half this rate: shortness of breath (18 percent), nausea (13 percent), and skin rashes (12 percent). Dividing the total percentage of individual symptoms experienced by the percent of respondents experiencing any one symptom indicates that on average, respondents experiencing any symptom reported experiencing 1.9 symptoms.

Consistent with general health statistics, women were more likely than men to report experiencing all of the probed symptoms (see Appendix C, Q.48). Overall, 69 percent of women, compared to 51 percent of men, reported at least one symptom. Surprisingly, respondents over age 50 reported fewer symptoms than those 50 or less in four of the five categories. The only area where older respondents reported more symptom experience was shortness of breath. Shortness of breath may be correlated with age as diminished lung capacity may be an expected physiological effect concomitant with advancing age. Overall, nearly half of those over age 50 (48 percent), compared to over one-third of those under age 30 (35 percent) or between 30 and 50 years (37 percent), reported that none of the probed symptoms were experienced.

City of residence seems to be related to symptom occurrence. In Durham (46 percent), Richmond (40 percent), and Albuquerque (42 percent) a greater proportion of respondents reported no

symptoms compared to the other three cities. Middlesex County had a high proportion of respondents reporting symptoms (66 percent) leading all other communities in the report of nausea, headaches, and irritation of the eyes, nose, and throat. Cincinnati also had a high proportion of respondents reporting symptoms (63 percent), as it led in the report of skin rashes and was second to Middlesex County in nausea, headaches, and irritation of the eyes, nose, and throat. Racine was third overall in the percentage of respondents reporting symptoms (60 percent) but led all communities in the percentage reporting shortness of breath (26 percent). Although Racine and Cincinnati had a higher mean age in their respondent sample (44 years), this difference was only one or two years compared to the other cities. Therefore, it is possible that physical symptoms may be related to the type of pollution in the environment of each city. However, this implication needs greater exploration before a finding can be firmly advanced.

Consulting the Doctor

Most respondents who reported a minor health problem said that they did not consult a doctor about the problem. As shown in Table 22 (page 95), 42 percent of those experiencing skin rashes said that they consulted their doctor. Shortness of breath (39 percent) and nausea (35 percent) also led respondents to contact their physicians to a moderate extent. A smaller percentage reported consulting the doctor for irritation of the eyes, nose, and throat (27 percent) or headaches (23 percent).

When summed together, over one-third (37 percent) of the respondents who experienced any of the health problems said that they consulted the doctor for the problem.

Not only did females tend to experience symptoms to a greater degree than males, they also tended to consult a doctor more frequently. Approximately, 41 percent of the females said they consulted a doctor for at least one of the symptoms compared to 31 percent of the males (see Appendix C, Q.49).

Middlesex County was the highest in percentage of respondents reporting a health problem (see Appendix C, Q.49). About 37 percent of those Middlesex respondents who had experienced a health problem consulted a doctor. Only respondents in Albuquerque (34 percent) and Racine (30 percent) had lower consultation rates. Other communities reported somewhat higher consultation rates: Cincinnati (42 percent), Richmond (40 percent), and Durham (40 percent). It is possible that Middlesex County residents may be more sensitized to environmental threats, noticing more physical problems, which they attribute to environmental causes, but not experiencing the problems as sufficiently severe to warrant professional help. However, other factors, such as the availability of medical care, would need to be ruled out before this explanation could be accepted.

Although older respondents reported a lower overall rate of symptoms, they reported a much higher rate of physician consultation for the experienced problems. About half (51

percent) of those over age 50 said they consulted a doctor for a problem, compared to 33 percent of those under age 30, and 32 percent of those age 30 to 50. Shortness of breath and skin rashes appear to be likely candidates for physician consultation by older respondents. This finding may suggest that older respondents have a higher tolerance for minor symptoms than do younger respondents so the symptoms they acknowledge are more likely to be severe. Alternatively, older respondents may be more likely to visit their doctor for some other reason and bring up the symptom at the time of the visit. Thus, proximity of the doctor rather than the severity of the problem may explain the frequency of doctor consultation.

Environmental Attribution

The third column of Table 22 (page 95) indicates that, similar to physician consultation, a moderate percentage of respondents experiencing each health problem attributed that problem to chemicals in the air, water, or soil. The one exception was eye, nose, or throat irritation. For this problem, almost twice the rate of people who visited the doctor (27 percent) attributed the cause of the problem to chemical pollution (50 percent).

Thus, it appears that respondents were able to discriminate to some degree among symptoms and attribute only some to environmental causes. Some differences also exist among communities in the degree to which environmental causes are seen as the source of physical effects (see Table 23, page 96). In

Middlesex County (51 percent) and Racine (49 percent) about half of the symptoms experienced were attributed to the environment, whereas in Albuquerque (25 percent) only one-quarter of the experienced symptoms were attributed to the environment.

Attribution theory suggests that people search for the most logical cause of observed reactions. If the environment offers clear evidence, or if there are no other clear suspects, then chemical pollution may be viewed as the cause of the problem. In addition, certain reactions (such as irritation to the eyes, nose, or throat) may be more "diagnostic" in that a perceived logical connection exists between the effect and the attributed cause. Other reactions, such as headaches, may be less diagnostic as these reactions may stem from many different causes. In the case of less diagnostic reactions, chemical pollution will be perceived as a cause to the extent to which this cause is "salient." Saliency would be determined by the top-of-the-mind awareness and ease of recall of this effect. If people are preoccupied with environmental pollution, view it as the cause of other problems, or are constantly reminded of chemical effects, then environmental attribution may be more readily provided.

Serious Health Problems

To obtain a measure of the extent to which respondents view the environment as the cause of a personal health tragedy, they were first asked if they, or someone in their family, had cancer or a child with birth defects. Approximately one-quarter (26

percent) of the sample responded in the affirmative. Those respondents were then asked if they thought that the problem was caused by chemicals in the air, water, or soil. One-quarter (25 percent) of those reporting the problem (7 percent of all subjects queried) attributed the cause to chemicals in the environment (see Appendix C, Q.51 and Q.52). Women (31 percent) and people over age 50 (32 percent) were more likely to report the existence of major health problems. This finding may be due to more risk of cancer or more knowledge about family outcomes among these subgroups.

In addition to observing more serious health problems, individuals in Middlesex County were also more likely to attribute those problems to environmental causes (see Table 24, page 97). Approximately one-third (34 percent) of the respondents in Middlesex attributed a major health problem to environmental causes compared to less than one-fifth (18 percent) of those in Richmond. Increased sensitivity to environmental problems for Middlesex County likely contributes to this increased attribution rate.

Although older respondents were more likely to report the occurrence of serious health problems, they were less likely than the general population to attribute them to chemical contaminants (see Appendix C, Q.52). With increasing age, alternative explanations may be available that compete with the environment. It is also possible that older people may be more willing to

accept chance events, without direct causal connections, as an explanation for observed problems.

TABLE 22

Percent of Respondents Experiencing
Symptom, Visiting Doctors, and Attributing
to Environmental Causes**

	<u>Experiencing</u>	<u>Consulted M.D.*</u>	<u>Environmental Cause*</u>
Irritation of Eyes, Nose & Throat	37	27	50
Headaches	36	23	20
Shortness of Breath	18	39	41
Nausea	13	35	28
Skin Rashes	12	42	28
Any Symptom	60	37	40

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* Percent of all those experiencing symptom

** Comparisons of trends only; no significance tests conducted.

TABLE 23

Percent of Subjects Experiencing (E)
& Attributing (A) Environmental Cause to
Experienced Symptom by Community

		<u>COMMUNITY</u>					
<u>Symptom</u>		<u>Rich</u>	<u>Dur</u>	<u>Alb</u>	<u>Cin</u>	<u>Mid</u>	<u>Rac</u>
Irritation of Eyes, Nose or Throat	E	36	29	36	40	45	35
	A*	49	41	31	50	60	61
Headaches	E	36	34	32	40	44	31
	A*	17	10	17	25	26	28
Shortness of Breath	E	16	13	12	21	22	26
	A*	31	25	24	42	48	54
Nausea	E	12	12	11	15	18	11
	A*	10	25	19	35	38	33
Skin Rashes	E	12	12	10	14	11	11
	A*	30	13	22	30	39	31
Any	E	60	54	58	63	66	60
	A*	37	29	25	43	51	49

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* Percent of symptoms experienced

Unless otherwise noted, all differences discussed in the text and tables are significant at $p < .05$. Percentages reported in the text are based on the entire sample (N=3129) except where noted.

TABLE 24

Percent of Respondents Reporting
and Attributing Family Cancer/Birth
Defects to Environmental Cause

	<u>Total</u>	<u>Rich</u>	<u>Dur</u>	<u>Alb</u>	<u>Cin</u>	<u>Mid</u>	<u>Rac</u>
Cancer/Birth Defect in Family	26	22	26	25	28	31	27
Environmental Cause*	25	18	22	20	27	34	24

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* Percent of those reporting cancer/birth defects in family

Unless otherwise noted, all differences discussed in the text and tables are significant at $p < .05$. Percentages reported in the text are based on the entire sample (N=3129) except where noted.

CONCLUSIONS AND RECOMMENDATIONS

The baseline survey provides a broad overview of how the citizens in six distinct communities view environmental risks. The data provide an interesting mix of similarities and differences among the studied communities. On the one hand, clear differences among communities exist in how they view the problem of environmental safety, the specific causes of concern, and readiness to respond within their individual community. On the other hand, we see a good deal of similarity across communities in how they learn about risks and their basic knowledge and attitudes about environmental risk. The lack of appreciation of basic risk concepts (e.g., dose-response relationships) is a cause of concern. It will be difficult to communicate complicated risk information if the public does not understand some basic principles. General educational programs may have long-term benefits of making specific risk communications more understandable even if these programs do not have immediate payoffs. In the meantime, most of the public is willing to delegate risk assessments to others rather than evaluate data on their own.

Since the primary purpose of the current report is communication planning, we shall focus this conclusion section on the channels, sources, and messages that may influence basic knowledge and attitudes about environmental risks and safety. Audience effects will be discussed throughout as EPA should be

cognizant of important constituencies who differ in response to environmental risk and safety.

Channels: Mass media (both newspapers and television) are overwhelmingly the means through which people first obtain information about the environment. The small amount of interpersonal communication suggests that environmental safety is not a central issue frequently discussed among friends and neighbors. Building collateral channels between information organizations, such as educating news reporters about environmental risks, would appear to be a significant investment in assuring that important messages are conveyed to the public with appropriate perspectives.

Sources: Although news reports are the most common form of environmental communication, the public apparently views news reporters as a channel and not as a source of information, recognizing their limited knowledge. However, only one other source, environmental groups, is viewed as providing risk information with frequency. Environmental groups are viewed as both knowledgeable and trustworthy. Although viewed as knowledgeable, the public is highly skeptical of all governmental or industry sources. Interestingly, LEPCs are viewed as relatively trustworthy and knowledgeable. Therefore, LEPC members (as representing the LEPC perspective rather than their own organization or constituency) may be good sources for providing acceptable and balanced viewpoints about environmental risks to the public.

It is interesting to note the low degree of environmental risk information received from physicians. Although many of the sample said that they had health problems exacerbated by environmental causes, and many consulted physicians about these problems, there was a low amount of environmental risk information obtained from physicians. Physicians were perceived as highly trusted but not particularly knowledgeable about environmental risks. In light of the high degree of trust, it may be worthwhile educating doctors about environmental risks so that they can provide acceptable information to their patients about the nature and extent of environmental risks.

Message Factors: It is clear that any news about local environmental events is evaluated relative to background information about environmental safety in the community. The between-community differences suggest a wide variance in readiness to respond. In Middlesex County, residents appear ready to interpret environmental news as a signal of new threats. Within other communities, such as Durham and Racine, residents appear more willing to fully evaluate the news before forming an opinion. Understanding community dynamics is essential before framing risk messages.

Certain individuals within communities, especially those who have had a significant event in the past, are also likely to react negatively to environmental news. To the extent that these people act as opinion leaders, we would expect a quickly diffused negative reaction to stimuli that may or may not signal

environmental risks. In our initial analysis, we did not find an identifiable subgroup of individuals within the communities that could act on an interpersonal basis to provide a broader perspective about environmental risks to help other people interpret risks. Future analyses to identify such individuals and to examine the role of opinion leadership within communities are planned.

On the other hand, within all of the studied communities a clear lack of understanding of risk concepts was found. Environmental risks are not tolerated and beneficial trade-offs are not incorporated in judgments about chemical safety. It is unclear if residents would be willing to make risk/benefit determinations when it comes to personal safety. However, providing residents with a more thorough understanding of how experts make safety determinations may lead to a broader appreciation of the tradeoffs in environmental safety.

One message that has not diffused at all within communities is emergency notification and preparedness planning. Even individuals who should have some greater knowledge of this material (i.e., people who work for the chemical industry), showed a lack of awareness. It would be important for LEPCs to communicate as thoroughly as possible to the public that such a plan exists. Since many people believe that they would first hear about environmental emergencies by television or radio broadcast, establishing good relationships with local television and radio stations and a firm emergency notification plan worked

out with the stations is reinforced by this survey. Providing people with some degree of mastery and control over potential emergencies may permit a more rational analysis of environmental risks. It is important to track awareness and knowledge about emergency notification planning among communities to learn if, and how, people within communities become aware of these plans, and how this information influences overall views of environmental risks.

FUTURE DATA COLLECTION AND ANALYSES

As stated in an earlier section, three general objectives guide the EPA/Georgetown/Columbia Cooperative Agreement. In addition to the analyses reported here, Georgetown and Columbia have presented to EPA a plan for secondary and tertiary analyses of the baseline data to further fulfill the three objectives. This plan is included here. As can be seen, some of the suggested analyses have already been conducted as part of this report or other cooperative agreement reports. Additional analyses will require additional funding from EPA and are depicted in italics.

OBJECTIVE 1: Provide an empirical basis for designing messages and selecting sources and channels to deliver needed information to various publics.

OBJECTIVE 2: Provide a baseline against which data from follow-up studies will be compared to assess the effects of variations among communities in their method of risk communication.

DISCUSSION:

In order to fulfill the first two objectives of this study, it is important to analyze generally the respondents' answers both within the individual communities and across communities. Both the within-community data and the across-community data will be further specifically analyzed by examining responses by basic demographics. This secondary analysis will examine what, if any, differences exist in knowledge, attitude, and behavior responses based on three basic demographics: age, gender, and education. This analysis will provide EPA with information as to which

message strategies, sources, and channels are appropriate for various segmented audiences: young adults, the middle aged, elderly, males, females, those with less than high school educations, and those with college degrees. Other secondary analyses of additional demographics (marital status, children, employment, income, etc.) will provide important data for EPA but will require additional funds to implement.

The following specific analyses will be conducted to examine the issues discussed above.

ANALYSES:

I. Describe the sample communities individually

- (a) marginal descriptions
- (b) crosstabs by basic demographics
- (c) *crosstabs by additional demographics*
- (d) *crosstabs by psychographics*

II. Comparison across communities

- (a) crosstab all variables by community
- (b) *three way crosstabs of variables BY community BY basic demographics*

III. Comparison of community data with national data

- (a) compare chosen questions to Roper questions
- (b) compare baseline data with trends identified from other polling data

IV. Analysis of information sources

In addition to analyses of responses by demographic groups, analysis by psychographic profiles provides very important information to risk communicators for appropriate audience

segmentation and targeting of messages. Psychographic profiles utilize lifestyle measures to categorize respondents according to their activities, interests, and opinions rather than or in addition to traditional demographic measures. In this analysis, homogeneous groups of respondents can be characterized on the basis of an "environmental risk profile." In other words, a respondents' prior experience with chemicals (e.g., whether they had personally faced a threatening situation, were considered an opinion leader on environmental topics, their perceived probability of exposure/harm from chemicals, whether they work with industrial chemicals, etc.) would be used as indicators of an "environmental risk profile." This profile would then be used to help explain respondents' answers to other key questions in the survey. This type of analysis is crucial to effective audience segmentation but would require additional funding to implement. The following specific analyses would be conducted to address the issue discussed above.

ANALYSES:

V. Psychographic Analysis of Environmental Risk Profiles (Market segmentation)

- (a) identification of psychographic groupings
(factor, cluster analysis)**
- (b) description of groups' attitudes, beliefs, behavior
(crosstabs)**
- (c) use of groupings to predict/explain attitudes and
behavior (structural equation modeling or path
analysis)**

The baseline survey provides a unique opportunity to learn about risk communication and health professionals from two perspectives. First, as an audience for risk communications, this analysis will examine the responses of 209 self-identified health professionals who were respondents to the baseline survey. Special analyses comparing these respondents to non-health professional respondents will be conducted to understand how this group differs in knowledge, perception, information-seeking, and other behavioral elements. These initial analyses will provide pilot data for an indepth, national study of over 600 health professionals in three or four specialties (with an oversample in two of the study communities) to probe a wider range of topics not covered in the baseline analysis. Second, health professionals are seen as providers of risk information to the public. This health professional analysis will examine how physicians view their role as disseminators of information about chemical hazards to their patients. Again, this secondary analysis requires additional funding to implement. The specific analyses which would be conducted in this effort are listed below.

ANALYSES:

VI. Health Professional Analysis

- (a) health professional as a source of information, trustworthiness, perceived expertise*
- (b) health professional as an audience for environmental information (compare responses on questionnaire for health professionals v. non-health professionals v. manufacturing)*

*(c) comparison of follow-up physician survey with
appropriate questions from baseline study*

OBJECTIVE 3: Track over time how community events influence the awareness, knowledge, attitudes and behavior of individual population segments.

DISCUSSION:

A follow-up survey is planned for the summer of 1990 to track changes in respondent knowledge, attitudes, and behavior over time in response to risk communication interventions surrounding Title III. During the interim timeframe, Georgetown and Columbia University are clipping environmental news stories from national as well as local newspapers in each of the communities. These news stories will then be quantitatively and qualitatively analyzed in order to examine the salient environmental happenings in each community and in the nation as a whole. This analysis will enable us to explain the expected change in respondent knowledge, attitudes, and behavior as determined by the out year surveys. This analysis will also provide important information concerning what and how information is disseminated through the general public, as well as the level and accuracy of the remembered information. This analysis will not require any additional funding, however, further analyses involving profiles of each community and tracking of risk communication interventions will require additional monies.

ANALYSES:

VII. Salient Events Tracking System (SETS)

- (a) Clip, record, and content analyze newspaper coverage of environmental events

- (b) *Profile communities and track community environmental activities and events*
- (c) *Track communication interventions surrounding Title III with Federal EPA, State DEP, environmental groups, industry*

IDEAS FOR ADDITIONAL ANALYSES:

VIII. *Tertiary analyses, such as the development of indexes and scales to use as global measures*

- (a) *Attitude toward government and business role scale*
- (b) *Slovic chemical risk attitude scale*
- (c) *Knowledge of environmental risk scale*

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QUESTIONNAIRE DEVELOPMENT

Because of the nature of the survey topic, the potential length of the questionnaire, and the locations of the communities, a decision was made to conduct a telephone interview. Telephone surveys have several advantages over personal interviews. Babbie (1986) cites two important savings: money and time. He also notes that sometimes respondents will be more honest in giving socially unapproved answers if they do not have to look the interviewer in the eye. Based on these considerations, IHPA and Columbia University designed a survey for use over the telephone.

Initial plans for the questionnaire were developed by IHPA and Columbia staff, with assistance from outside experts and EPA staff. Conceptual areas to be examined in the survey were identified and overall plans for community selection were developed. Previous environmental questionnaires were reviewed and results were discussed at these meetings to assure that the current questionnaire was based upon the best available knowledge about factors influencing community perception of environmental risk and to identify effective questions and questioning strategies.

A draft of the questionnaire was sent to over 20 organizations for review including EPA, state departments of environmental protection, academic environmental research institutions, chemical industry officials, environmentalist groups, the National Science Foundation, National Academy of Sciences, and others. After their individual review, many of these reviewers met in Washington, D.C., in April 1988, at IHPA to discuss the rationale of the survey and the development of the instrument.

The instrument was pretested with potential respondents in a focus group with 10 residents of Greenbelt, Maryland, to examine the appropriateness and clarity of the survey questions. A final telephone pretest of the questionnaire was conducted by Chilton Research Services in Radnor, Pennsylvania, a suburb of Philadelphia.

During the telephone pretest, considerable attention was paid to response rates. Most refusals were occurring during the initial solicitation for participation in the survey, so alternative wordings of the introductory paragraph were attempted. "Toxic wastes" elicited the highest response rates. But the introduction actually used in the survey represented a compromise that emphasized the importance of the research while not biasing the respondent toward any particular orientation.

The final questionnaire was administered using computer assisted telephone interviewing (CATI). This technique was developed at the University of California's Survey Research Center in Berkeley and has been adapted for use by the U.S. Census Bureau (Babbie, 1986). There are several advantages of CATI. For instance, the order of questions making up the questionnaire can be rotated automatically to avoid any biases due to question order. This strategy was a particular benefit, because this questionnaire included several questions with long lists of possible answers. Also, since respondents' answers are entered into the computer by the interviewer as the questions are being answered, the growing body of data can be analyzed continuously. Direct data entry enhances monitoring and reduces interviewer errors and data editing problems.

Project staff were able to monitor ongoing interviews in any of the six communities from Washington, D.C., at any time of the day or night. In addition, IHPA and Columbia received daily progress reports from the survey firm.

COMMUNITY SELECTION

Six communities were chosen for the study: Albuquerque, New Mexico; Cincinnati, Ohio; Durham, North Carolina; Middlesex County, New Jersey; Racine, Wisconsin; and Richmond, Virginia. These communities were chosen by EPA, IHPA, and Columbia University based upon several criteria: the presence of significant industry using, storing, processing or releasing chemicals so that the effects of SARA Title III could be assessed; location of a Superfund or other hazardous waste site; the existence of an active local emergency planning committee or environmental group; and experience with prior emission problems or prior enforcement activities in the community. Table 1 lists each community and its status on each criterion.

The six communities do not represent the population of all communities in the U.S. Therefore, extrapolation of the community data to the U.S. is not possible. It may be more appropriate to view the results of the survey as providing community comparisons of knowledge, attitudes, and behaviors concerning environmental risks from localities facing different sets of environmental risks. Because of the diverse characteristics of these communities, comparisons within communities among various population groups and results across communities can provide guidance in a variety of settings where the delivery of environmental information is desirable. However, care must be exercised in applying these results to other individual communities as risk communication effects may vary depending on community conditions. Therefore, between-community comparisons have been described in some detail in this report.

During 1989, IHPA personnel are visiting each of the six surveyed communities to interview local environmental opinion leaders. These interviews will provide EPA, IHPA, and Columbia with a context for interpreting the findings reported in this paper. A report will be prepared for EPA after each community visit.

SAMPLE SELECTION

Respondents within each community were randomly selected using random digit dialing (RDD) which gives all working household numbers an equal chance of selection whether or not they are listed in the telephone directory. A sampling plan based on telephone directories is not as complete or current as randomly generated numbers since it is limited to listed telephone numbers. RDD is not restricted in this manner and can reach every telephone household in the U.S. even if the number is unlisted or is a new listing (approximately 20 percent of telephones nationwide). The survey also screened the selected numbers for business listings. Through the use of equal probability of selection and repeated samples, this design provides sampling efficiency and eases the calculation of sampling errors (Chilton Research Services, 1988).

The first step in drawing an RDD sample is to select the telephone exchanges to be used from a stratified listing of all available exchanges in the survey area. In this study, the sample was stratified geographically, resulting in a separate sample for each of the six communities. The telephone number consists of ten digits -- the first three identify the area code; the second three identify the telephone exchange; the last four digits identify the telephone subscriber household. The first stage of sampling is to sample the telephone exchange.

After the separate community samples of exchanges have been taken, the second stage of sampling involves selecting the actual households to be surveyed. Telephone exchanges are actually clusters of telephone households. The sizes of these clusters vary. In order to provide a self-weighting sample of households, sample households are selected in proportion to the number of households served by each telephone exchange.

The third stage in the sampling process was to randomly select one respondent within the household, specifically the adult over 18 years of age with the most recent birthday. Given uneven probabilities of males and females being home or as the sole household member, a gender quota was also established to assure an equal representation of males and females in the survey. The interview required about 25 minutes of the respondent's time. A prior decision was made to complete at least 500 interviews in each of the six communities.

To minimize selection bias and enhance response rate, the protocol required an original call plus five call-backs if necessary. A "non-response conversion" effort was implemented in an attempt to convert those selected households that originally had refused to participate in the study. Many of the initial refusers had been temporarily too busy to answer the questionnaire, so call-backs were used to reach respondents at a more convenient time. About twenty percent of initial non-responders were converted through this process. After careful comparison, it was determined that the demographics of the converted respondents did not differ from the initial respondents. Therefore, the data from both initial respondents and converted respondents were combined for analysis.

The response rate for each community was calculated using the following formula:

$$\text{Response Rate} = \frac{\text{Complete Interviews}}{\text{Callbacks*} + \text{Breakoffs**} + \text{Refusals***} + \text{Completes}}$$

* Refers to those respondents who indicated on the original call that they would prefer to be called at a later time. On all subsequent call attempts, these individuals were unavailable.

** Refers to those respondents who began the interview but terminated at some point in the process. These partial interviews were not completed on subsequent attempts.

*** Refers to those households who refused on all attempts to participate in the survey.

The following chart illustrates the response rate per community:

	<u>Response Rate</u>	<u>Completed Interviews</u>	<u>Callbacks+ Breakoffs+ Refusals</u>
Albuquerque	60.5%	506	330
Cincinnati	59.8%	505	340
Durham	61.4%	505	317
Middlesex County	52.7%	503	452
Racine	62.9%	604*	356
Richmond	58.5%	506	359

* About 100 extra interviews were conducted in Racine due to a mistake in release of sample clusters.

Overall, the response rate for the survey was 59.1%. Response rates at this level are common in this era of telemarketing. In fact, a recent article in Survey Sampling, Inc. (Danbury, 1988) stated that "providing the interview is short, is nonsensitive in nature, that sufficient callbacks are scheduled and that it will be in the field for an adequate period of time, then we usually estimate a 45 percent completion rate" (p.2). The vast majority of the refusals in our survey occurred before the first question was even asked (86 percent). This finding is consistent with other survey data. A 1987 article in American Demographics noted that 84 percent of all refusals occur before the questions start.

TABLE 1
BASELINE COMMUNITIES

	Prior Emission Problems	Releases; Accidental or Routine	Active LEPC	Citizen/ Env. Group	Planned Intervention	Lq. # Citizens Employed by T3 Industries	Prior Enforcement Activities	Water System	S fund or RCRA
Albuquerque	Yes	A-yes R-yes	yes	yes	no	no	yes	around	S
Cincinnati	yes	A-yes R-yes	yes	yes	no	yes	no	river	R S
Richmond	yes	A-no R-yes	yes	yes	no	no	no	river	S
Durham	yes	A-yes R-yes	yes	yes	yes	no		river	R
Racine	yes		yes						
Summit	yes	A-no R-yes	yes	yes	yes	yes		around and surface	
Carteret	yes	A-yes R-yes	no (county active)	yes	yes (at county level)	yes	yes		S

#4052Q
Chilton Research Services
Radnor, Pennsylvania

Revised 8/31/88
Study #7682
August, 1988

- SRP Columned -
CHEMICAL RISKS

Interview # _____
(101-05)

Time Dialed _____ AM _____ PM

Time Began _____ AM _____ PM

Time Ended _____ AM _____ PM

Phone Number:

() - _____
(409-18)

Julian Date - 419-23

1. (SRP: RECORD COMMUNITY FROM ON-LINE SAMPLE:)

106-

Richmond	1
Raleigh/Durham	2
Albuquerque	3
Cincinnati	4
Middlesex	5
Racine County	6

SRP NOTE: USE Q. 1 IDENT TO DETERMINE WHICH COMMUNITY TO REPRESENT
THROUGHOUT QUESTIONNAIRE.

IF 1, REPRESENT 'RICHMOND'
IF 2, REPRESENT 'RALEIGH/DURHAM'
IF 3, REPRESENT 'ALBUQUERQUE'
IF 4, REPRESENT 'CINCINNATI'
IF 5, REPRESENT 'MIDDLESEX COUNTY'
IF 6, REPRESENT 'RACINE COUNTY'

INTRODUCTION

This is a study on toxic substances in the (COMMUNITY NAME) area.
[INTERVIEWER NOTE: (IF ASKED) You may reassure the respondent that this research is not related to any planned new facility in the community or planned changes in the operations of any existing facilities.]

* IF REASSURANCE IS NEEDED, PLEASE RECORD. * (425)

Please verify that I have reached you by dialing . . .

SRP NOTE: REPRESENT Q. 2 AND Q. 3 IN PROPORTION
TO SAMPLING REQUIREMENTS

RESPONDENT SELECTION (ASK Q. 2 OR Q. 3 AS INDICATED)

2. Our research experts have randomly selected the person in your household I should speak to, so that all types of people will be represented in our survey. Thinking of all the male adults 18 years of age or older, living in this household, May I speak to the one who last had a birthday?

(INTERVIEWER: IF NO MALE 18 OR OLDER IN HOUSEHOLD, ASK FOR A FEMALE 18 OR OLDER WHO LAST HAD A BIRTHDAY)

(IF NEW PERSON SELECTED, REPEAT INTRODUCTION)

(IF SELECTED PERSON IS NOT AVAILABLE, SET UP CALLBACK FOR BEST TIME TO REACH THAT PERSON)

3. Our research experts have randomly selected the person in your household I should speak to, so that all types of people will be represented in our survey. Thinking of all the female adults 18 years of age or older, living in this household, May I speak to the one who last had a birthday?

(INTERVIEWER: IF NO FEMALE 18 OR OLDER IN HOUSEHOLD, ASK FOR A MALE 18 OR OLDER WHO LAST HAD A BIRTHDAY)

(IF NEW PERSON SELECTED, REPEAT INTRODUCTION)

(IF SELECTED PERSON IS NOT AVAILABLE, SET UP CALLBACK FOR BEST TIME TO REACH THAT PERSON)

4. INTERVIEWER: CODE SEX OF RESPONDENT

477-

Male	1
Female	2

(If refused, respondent selection also - 476)

5. The first question involves your views about the quality of life in the (NAME COMMUNITY) area.

Compared to most other areas, do you think that the (NAME COMMUNITY) area has: (READ EACH ITEM, RECORD ONE ANSWER FOR EACH. REPEAT QUESTION FOR FIRST THREE ITEMS AND AS NEEDED THEREAFTER.)

	Yes	No	DK
A low rate of unemployment	108 ₁	2	8
Clean air and water	109 ₁	2	8
Good schools	110 ₁	2	8
Good health care	111 ₁	2	8
A low crime rate	112 ₁	2	8
Few environmental health risks	113 ₁	2	8

6. Compared with other health and safety risks, such as car accidents, food-borne illness, heart disease, and home fires, do you think the risk of chemicals produced, stored, or processed in the (YOUR COMMUNITY) area is: (READ ALTERNATIVES, CHECK ONLY ONE)

114-

Not a problem	1
A minor problem	2
A slightly serious problem	3
A serious problem (or)	4
A very serious problem	5

7. Do you think there are any facilities or locations in your area that pose a threat to the safety of the environment, such as a threat to the air, water or soil?

115-

CONTINUE	Yes	1
	No	2
SKIP TO Q. 11	Don't Know	8
	Refused	9

8. Would you briefly describe the type of place or facility? (PROBE: What do they do there?) (RECORD ALL MENTIONS) (DO NOT READ) (PROBE ONCE: "What other facilities?") (116-35)

	1st Mention	2nd Mention	3rd Mention	All Other Mentions
Chemical manufacturing plant	01	01	01	01
Dry cleaners	02	02	02	02
Farm supplier	03	03	03	03
Gasoline station	04	04	04	04
Incinerator	05	05	05	05
Landfill/garbage collection facility/dump	06	06	06	06
Nuclear facility/power plant	07	07	07	07
Pharmaceutical manufacturer	08	08	08	08
Public swimming pool	09	09	09	09
Refinery	10	10	10	10
Research laboratory	11	11	11	11
Sewage treatment plant	12	12	12	12
Hazardous waste disposal facility	13	13	13	13
Other (SPECIFY) _____	97	97	97	97
SKIP TO Q.11	Don't Know	98		
	Refused	99		

SRP NOTE: FOR Q. 9 AND Q. 10, REPRESENT 1ST MENTION FROM Q. 8.
IF 97 (OTHER), REPRESENT LL ENTRY.

To what extent, if at all, are you bothered by the (NAME OF FIRST MENTIONED FACILITY FROM Q. 8)? (SRP: IF 2 OR MORE FACILITIES MENTIONED IN Q. 8, ADD: ", that you mentioned first?") Are you bothered a great deal, somewhat, or not at all?

136-

CONTINUE	A great deal	1
	Somewhat	2
SKIP TO Q. 11	Not at all	3

10. Please tell me what in particular bothers you about this (NAME OF FIRST MENTIONED FACILITY FROM Q. 8)? Are you bothered a great deal, somewhat, or not at all by: (READ FIRST ITEM)

And, thinking about the (FACILITY), are you bothered a great deal, somewhat, or not at all by (ITEM)? (RECORD ONE ANSWER FOR EACH, ROTATE ORDER. REPEAT QUESTION FOR FIRST THREE ITEMS AND AS NEEDED THEREAFTER.)

RANDOM START		A Great Deal	Some-what	Not At All	Don't Know	Refused
	An unpleasant smell	137 ₁	2	3	8	9
	The danger it poses to health in the long run	138 ₁	2	3	8	9
	Dust, dirt, or smoke in the air	139 ₁	2	3	8	9
	The possibility that a major accident could harm or kill people	140 ₁	2	3	8	9
	The irritation it causes to eyes, nose, throat, or skin	141 ₁	2	3	8	9
	Long term damage to the environment	142 ₁	2	3	8	9
	A decrease in property values	143 ₁	2	3	8	9

SRP NOTE: FOR EACH ITEM IN Q. 11 - IF RESPONSE IS 'YES', IMMEDIATELY ASK Q. 12 BEFORE CONTINUING TO THE NEXT ITEM IN Q. 11.

11. I'm going to read a list of facilities that may be located in the (COMMUNITY) area. While you may have already mentioned one or more of these facilities, I'd like you to tell me if there is such a facility located near where you currently live. First ...

Is there a (ITEM) located near the place you live? (READ EACH ITEM) (REPEAT QUESTION FOR FIRST THREE ITEMS, REPEAT QUESTION IF FOLLOWING Q. 12, AND AS NEEDED THEREAFTER.)

12. Do you think it poses a threat to the safety of the environment in the (YOUR COMMUNITY) area?

RANDOM START		Q. 11			Q. 12		
		Yes	No	Don't Know	Yes	No	Don't Know
	Chemical manufacturing plant	144 ₁	2	8	152 ₁	2	8
	Dry cleaners	145 ₁	2	8	153 ₁	2	8
	Farm supplier	146 ₁	2	8	154 ₁	2	8
	Gasoline station	147 ₁	2	8	155 ₁	2	8
	Incinerator	148 ₁	2	8	156 ₁	2	8
	Landfill	149 ₁	2	8	157 ₁	2	8
	Sewage treatment plant	150 ₁	2	8	158 ₁	2	8
	Hazardous waste facilities	151 ₁	2	8	159 ₁	2	8

13. In the past three months, have you read or heard anything about the risks of chemicals or hazardous wastes in the (COMMUNITY) area?

160-

CONTINUE	Yes	1
SKIP TO Q. 17	No	2
	Don't Know	8
	Refused	9

14. In the past week, have you read or heard anything about the risks of chemicals or hazardous wastes in the (COMMUNITY) area?

161-

CONTINUE	Yes	1
SKIP TO Q. 17	No	2
	Don't Know	8
	Refused	9

15. What was the information that you heard or read? (PROBE AND CLARIFY FULLY) (RECORD ON VBA SHEET)

162(1)

A07(606-615)

A08(616-625)

A09(626-635)

16. Where did you read or hear this information? (DO NOT READ) (RECORD ALL MENTIONS)
(PROBE FULLY)

(163-76)

	Doctors or other health professionals	01
	Family members	02
	Friends or neighbors	03
	Government officials (LOCAL)	04
	Government officials (STATE)	05
	Government officials (NATIONAL)	06
	Government publications	07
	Hotlines	08
	Library	09
	Local businesses	10
	Local Emergency Planning Committee	11
(460-69)	Magazines (SPECIFY NAME(S) AS AN "LL" OTHER)	12
	Newspapers (unspecified)	13
	Notices in mail	14
	Radio	15
	Television news (LOCAL)	16
	Television news (NATIONAL)	17
	Town meetings	18
	Newspapers (LOCAL)	19
	Newspapers (NATIONAL)	20
	Other (SPECIFY)	97

SRP NOTE: Q. 17, 18 & 19 ARE ALL RANDOM START. ALL THREE SHOULD START ON THE SAME RANDOM START ITEM.

17. There are several different sources of information about the risks that chemicals pose to the community. I'd like to ask you some questions about those sources. First . . .

Would you say that you get a lot, some, or no information about the risks of chemicals in the (COMMUNITY) area from: (READ EACH ITEM. REPEAT QUESTION FOR FIRST FIVE ITEMS AND AS NEEDED THEREAFTER.)

RANDOM START		Info				
		A Lot	Some	No	Not Applicable	Don't Know
	Friends and relatives	206 ₁	2	3	4	8
	Local emergency planning committees	207 ₁	2	3	4	8
	Your doctor	208 ₁	2	3	4	8
	State government officials	209 ₁	2	3	4	8
	Officials who work for the chemical industry	210 ₁	2	3	4	8
	Federal government officials	211 ₁	2	3	4	8
	Environmental groups	212 ₁	2	3	4	8
	People you know who work for the chemical industry	213 ₁	2	3	4	8
	Local government officials	214 ₁	2	3	4	8
	News reporters	215 ₁	2	3	4	8

18. Second, please tell me how much you trust each source.

Would you say you trust (ITEM) a lot, some, or not at all when it comes to finding out about the risks of chemicals in the (COMMUNITY) area? (RECORD ONE ANSWER FOR EACH) (REPEAT QUESTION FOR FIRST FIVE ITEMS AND AS NEEDED THEREAFTER.)

RANDOM START		Trust				
		A Lot	Some- what	Not At All	Not Applicable	Don't Know
	Friends and relatives	216 ₁	2	3	4	8
	Local emergency planning committees	217 ₁	2	3	4	8
	Your doctor	218 ₁	2	3	4	8
	State government officials	219 ₁	2	3	4	8
	Officials who work for the chemical industry	220 ₁	2	3	4	8
	Federal government officials	221 ₁	2	3	4	8
	Environmental groups	222 ₁	2	3	4	8
	People you know who work for the chemical industry	223 ₁	2	3	4	8
	Local government officials	224 ₁	2	3	4	8
	News reporters	225 ₁	2	3	4	8

19. Third, please tell me how knowledgeable you think each source is about the risks of chemicals to the environment.

Would you say (ITEM) (is/are) very, somewhat, or not at all knowledgeable about the risks of chemicals in the (COMMUNITY) area? (RECORD ONE ANSWER FOR EACH) (REPEAT QUESTION FOR FIRST FIVE ITEMS AND AS NEEDED THEREAFTER.)

RANDOM START		Knowledgeable				
		Very	Some- what	Not At All	Not Applicable	Don't Know
	Friends and relatives	226 ₁	2	3	4	8
	Local emergency planning committees	227 ₁	2	3	4	8
	Your doctor	228 ₁	2	3	4	8
	State government officials	229 ₁	2	3	4	8
	Officials who work for the chemical industry	230 ₁	2	3	4	8
	Federal government officials	231 ₁	2	3	4	8
	Environmental groups	232 ₁	2	3	4	8
	People you know who work for the chemical industry	233 ₁	2	3	4	8
	Local government officials	234 ₁	2	3	4	8
	News reporters	235 ₁	2	3	4	8

20. The next question deals with how much information you feel you know about some environmental topics in your area.

Would you say you know a lot, a little, very little, or nothing about: (READ EACH ITEM) (RECORD ONE ANSWER FOR EACH) (REPEAT QUESTION FOR FIRST THREE ITEMS AND AS NEEDED THEREAFTER.)

RANDOM START		Know A Lot	Know A Little	Know Very Little	Know Nothing	Don't Know
	The location of facilities in your area where chemicals are stored or used	236 ₁	2	3	4	8
	Releases of chemicals into the atmosphere	237 ₁	2	3	4	8
	The quality of your area's drinking water	238 ₁	2	3	4	8
	Community right-to-know laws	239 ₁	2	3	4	8
	Emergency preparedness plans in your area	240 ₁	2	3	4	8
	Hazardous waste facilities in your area	241 ₁	2	3	4	8
	Activities to clean up accidental spills of hazardous materials	242 ₁	2	3	4	8
	The risks of chemicals in your area	243 ₁	2	3	4	8

Your personal opinions on the next few questions are very important to us. We want to learn how to better communicate with the (COMMUNITY NAME) community about environmental issues:

21. Would you strongly agree, somewhat agree, somewhat disagree or strongly disagree that . . .? (READ EACH ITEM, RECORD ONE ANSWER FOR EACH.) (REPEAT QUESTION FOR FIRST THREE ITEMS AND AS NEEDED THEREAFTER.)

RANDOM START		Strongly Agree	Some- what Agree	Some- what Dis- agree	Strongly Disagree	Don't Know
	The federal government is doing a good job cleaning up the environment.	244 ₁	2	3	4	8
	We should assume a chemical is safe unless tests prove it to be dangerous.	245 ₁	2	3	4	8
	Chemicals have improved our health more than they have harmed our health.	246 ₁	2	3	4	8
	Any release of chemicals into the air, water or soil is not acceptable.	247 ₁	2	3	4	8
	Planned releases of chemicals into the air, water or soil are generally safe.	248 ₁	2	3	4	8
	The only time the public hears about the release of toxic chemicals is when the problem is so big it can't be kept secret anymore.	249 ₁	2	3	4	8
	It's not how much of a chemical you are exposed to that matters to your health, it's whether or not you are exposed at all.	250 ₁	2	3	4	8
	If a person is exposed to a chemical that can cause cancer, then that person is likely to get cancer later in life.	251 ₁	2	3	4	8
	There are some chemical risks that are too small to worry about.	252 ₁	2	3	4	8
	I feel I am involved in environmental decisions that may affect my health.	253 ₁	2	3	4	8
	Local businesses are usually very careful with dangerous chemicals.	254 ₁	2	3	4	8
	Burying toxic wastes in landfills is <u>not</u> a serious problem.	255 ₁	2	3	4	8
	Local officials are interested in what the public has to say about chemicals in the area.	256 ₁	2	3	4	8

22. In regards to environmental issues, here are some things that may or may not be happening in the (COMMUNITY) area.

Would you say it is true that in the (COMMUNITY) area (ITEM)? (READ EACH ITEM. RECORD ONE ANSWER FOR EACH.) (REPEAT QUESTION FOR FIRST THREE ITEMS AND AS NEEDED THEREAFTER.)

RANDOM START		Yes	No	Don't Know
	There is an emergency preparedness plan for hazardous materials.	257 ₁	2	8
	The police or fire department have trained personnel to respond to chemical emergencies.	258 ₁	2	8
	Local businesses have notified the community about toxic chemicals they use, store or release.	259 ₁	2	8
	Environmental groups have been active in your area in discussing the risks of toxic chemicals.	260 ₁	2	8
	The local government has been actively working on the problem of chemicals in the environment.	261 ₁	2	8
	Local businesses have reduced the amount of toxic chemicals they store, use, or release.	262 ₁	2	8

23. From zero to 100, with zero meaning no chance and 100 meaning 100 percent, what do you think is the probability that you have been exposed to toxic chemicals in the past five years? (RECORD NUMBER) (PROBE FOR ONE SPECIFIC NUMBER)

_____%
(263-65)

SKIP TO Q. 25	Don't Know	8
	Refused	9

SRP NOTE: CHECK Q. 23. IF RESPONSE IS 000, DK OR R, SKIP TO Q. 25.

24. On the same zero to 100 percent scale, with zero meaning no chance and 100 meaning 100 percent chance, what do you think is the probability that your exposure to toxic chemicals will harm your health? (RECORD NUMBER) (PROBE FOR ONE SPECIFIC NUMBER)

_____(266-68)

25. What kind of job do you think each of the following groups are doing at keeping the (COMMUNITY) area safe from the risks of hazardous chemicals?

Would you say that (ITEM) is doing an excellent job, a good job, a fair job, or a poor job at keeping the (COMMUNITY) area safe from the risks of hazardous chemicals? (READ EACH ITEM) (RECORD ONE ANSWER FOR EACH) (REPEAT QUESTION FOR FIRST THREE ITEMS AND AS NEEDED THEREAFTER.)

RANDOM START		Excellent	Good	Fair	Poor	Never Heard of/ Not Familiar	Don't Know
	The local government	269 1	2	3	4	5	8
	Local businesses	270 1	2	3	4	5	8
	The federal Environmental Protection Agency	271 1	2	3	4	5	8
	The state government	272 1	2	3	4	5	8
	The local emergency planning committee	273 1	2	3	4	5	8
	Local environmental groups	274 1	2	3	4	5	8

26. Have you ever faced a situation involving chemicals in the environment that you considered threatening to you or your immediate family?

275-

CONTINUE	Yes	1
SKIP TO Q. 28	No	2
	Don't Know	8

27. Would you briefly describe the "threatening situation": (PROBE AND CLARIFY FULLY)
(RECORD ON VBA SHEET)

276(1)

A10(636-645)

A11(646-655)

A12(656-665)

A13(666-669)

28. Next, I'm going to read a list of things that people sometimes do to protect themselves from chemical risks in the environment.

Have you ever (READ ITEM) because of risks in the environment? (REPEAT QUESTION FOR EVERY ITEM) (RECORD ONE ANSWER FOR EACH)

RANDOM START		Yes	No	Don't Know
	Used bottled drinking water	306 ₁	2	8
	Moved or chosen not to live in a certain house	307 ₁	2	8
	Gone to the library to find out more about the problem	308 ₁	2	8
	Attended a town or community meeting	309 ₁	2	8
	Contributed time or money to an environmental cause	310 ₁	2	8
	Called or written to a government official	311 ₁	2	8
	Talked to your doctor	312 ₁	2	8

29. If there was a large spill or release of hazardous chemicals in the (COMMUNITY) area, how do you think you would first be notified? (DO NOT READ LIST.) (CLARIFY "NEWS": WOULD THAT BE ON TV, RADIO OR SOME OTHER SOURCE?)

(313-14)

Friends/relatives	01
Neighbors	02
Siren/warning signal	03
Emergency broadcast system	04
Police	05
Television (news)	06
Radio (news)	07
Firefighters	08
Newspapers	09
Other (SPECIFY) _____	97

Finally, a few questions about yourself. These questions are asked for statistical purposes only to help us better understand the results of this study:

30. In what year were you born? (RECORD)

_____ (year)
(315-18)

32. What is the highest level of education you have completed? (DO NOT READ LIST)
(RECORD ONLY ONE ANSWER)

(320-21)

8th grade or less	01
Less than high school	02
High school degree	03
Some college	04
College degree	05
Some graduate work	06
Graduate degree	07
Vocational/technical school	08
Other (SPECIFY) _____	97
Don't Know	98

33. What is your marital status?

(322-23)

Single	01
Married	02
Divorced	03
Separated	04
Widow/widower	05
Other (SPECIFY) _____	97
Don't Know	98

34. Including yourself, how many people live in your household? (SRP: VERIFY IF OVER 10)

_____ people
(324-25)

35. How many children, 17 or under, live in your household?
(SRP: CHECK THAT Q. 35 < Q. 34)

_____ children
(326-27)

36. Do you own or rent your current place of residence? (RECORD ONLY ONE ANSWER)

328-

Own	1
Rent	2
Other (SPECIFY) _____	7
Don't Know	8

37. Is this your year-round residence, that is do you live here for at least 7 months out of the year?

329-

Yes	1
No	2
Don't Know	8
No Answer	9

38. How many years have you (IF YES, DK, NA IN Q. 37: "lived in," IF NO IN Q. 37: "been coming to") the (COMMUNITY) area? (DON'T READ) (RECORD ONLY ONE)

330-

Less than 6 months	1
6 months to one year	2
One to five years	3
Six to ten years	4
Ten to fifteen years	5
More than fifteen years	6
Don't Know	8

39. Are you currently employed outside the home? (IF YES:) Full-time or Part-time?

331-

SKIP TO Q. 41	Full-time	1
	Part-time	2
CONTINUE	No	3
SKIP TO Q. 43	No Answer	9

40. Are you . . . (READ LIST)?

332-

SKIP TO Q. 43		A homemaker?	1
		A student?	2
CONTINUE TO Q. 41		Retired?	3
SKIP TO Q. 43		Disabled?	4
CONTINUE TO Q. 41		Temporarily laid off? or	5
		Not employed -- looking for work?	6
SKIP TO Q. 43	DO NOT READ	Other (SPECIFY)	7
		No Answer	9

SRP NOTE: FOR Q. 41 & 42, CHECK Q. 39. IF "1" OR "2", REPRESENT FIRST WORDING IN PARENTHESES. IF "3", REPRESENT 2ND WORDING.

41. In which kind of business, industry, or profession (do/did) you work? That is, what is done or made where you (work/worked)? (CLARIFY FULLY, RECORD ON VBA)

333(1)

A14-16

(670-672)

42. What (is/was) your exact job, profession, or line of work? That is, what kind of work (do/did) you do at your job or profession? (CLARIFY FULLY, RECORD ON VBA)

334(1)

A19-21

(673-675)

43. Does anyone in your household have a job that requires working with industrial chemicals?

335-

Yes	1
No	2

44. Other than yourself, does anyone in your immediate family work as a health professional? (RECORD ALL THAT APPLY)

336-

CONTINUE	Yes	1
SKIP TO Q. 47	No	2
	Don't Know	8

45. Who would that be? (PROBE: Who else in your immediate family works as a health professional?)

SRP NOTE: FOR Q. 46, REPRESENT RESPONSE FROM Q. 45 IN PLACE OF PARENTHESES.

46. (FOR EACH PERSON MENTIONED IN Q. 45) What type of health professional is your (Q. 45 person)?

(430-39)

(450-59)

Q.45 Who In Immediate Family		Q.46 Specify Type of Health Professional
Husband	01	
Wife	02	
Son	03	
Daughter	04	
Brother	05	
Sister	06	
Father	07	
Mother	08	
Other (SPECIFY)	97	

47. How often would you say you are asked for advice on chemical risks in the environment? Would you say you are asked often, sometimes or never?

341-

Often	1
Sometimes	2
Never	3

SRP NOTE: FOR EACH ITEM IN Q. 48 - IF RESPONSE IS "YES", IMMEDIATELY ASK Q. 49 & Q. 50 BEFORE CONTINUING TO THE NEXT ITEM IN Q. 48.

48. During the past month, have you experienced any of the following health problems? Have you experienced . . . ? (READ EACH ITEM)

In the past month, have you experienced (ITEM)?

49. (IF YES) Did you consult your doctor about this problem?

50. Do you think this was caused by chemicals in the air, water, or soil?

RANDOM START		Q. 48			Q. 49			Q. 50		
		Problems			Consult Doctor			Environmental Cause		
		Yes	No	Don't Know	Yes	No	Don't Know	Yes	No	Don't Know
	Headaches	342 ₁	2	8	347 ₁	2	8	352 ₁	2	8
	Nausea	343 ₁	2	8	348 ₁	2	8	353 ₁	2	8
	Irritation of the eyes, throat or nose	344 ₁	2	8	349 ₁	2	8	354 ₁	2	8
	Shortness of breath	345 ₁	2	8	350 ₁	2	8	355 ₁	2	8
	Skin rashes	346 ₁	2	8	351 ₁	2	8	356 ₁	2	8

51. Have you or any member of your immediate family had cancer or children with birth defects?

357-

CONTINUE	Yes	1
SKIP TO Q. 53	No	2
	Don't Know	8

52. Do you think this was caused by chemicals in the air, water, or soil?

358-

Yes	1
No	2
Don't Know	8

53. Which of the following categories best describes your total annual household income, before taxes? Is it: (READ LIST)

359-

	Less than \$20,000	1
	\$20,000 up to \$35,000	2
	\$35,000 up to \$50,000	3
	\$50,000 or over	4
DO NOT READ	Don't Know	8

54. What is your zip code?

_____(ZIP)
(360-64)

55. Is this the only telephone number for this residence? (IF MORE THAN ONE, MAKE SURE THIS IS NOT AN EXTENSION)

365-

SKIP TO Q. 57	Yes, only one number	1
CONTINUE	No, two or more numbers	2

56. How many telephone numbers do you have for this residence? (SRP: VERIFY # IS 2 OR MORE; CHECK IF # IS 5 OR MORE)

_____(# telephone numbers)
(366-67)

57. Again, let me say that all the information you have given us is completely confidential. We will be continuing our research on toxic chemicals at Georgetown and Columbia universities and we may need to get in touch with you again. Would you please tell me your first name so that we will know who to ask for if we call again.

_____(SPECIFY)
(440-49)

Interviewer: RECORD SEX OF RESPONDENT (DO NOT ASK)

107-

Male	1
Female	2

CONCLUSION: Thank you for your time and help answering these questions.
Good evening/Good day.

478 - Refusal Conversion

Question*	Total	Community							Education			Age		
		Richmond	Durham	Albuquerque	Cincinnati	Mid-dle-sex coun-ty	Racine coun-ty	Gender Fe- Male	HS or less	Some Coll or more	Less than 30 yrs.	30-50 yrs.	More than 50 yrs.	
5. Compared to most other areas, do you think that your community/area has:														
Good health care	89.3	89.5	95.4	84.4	91.9	87.5	87.4	90.3	88.2	88.9	89.6	88.9	90.4	87.8
Good schools	79.3	77.7	79.0	64.4	83.8	81.1	87.9	80.5	78.0	82.5	77.1	77.0	78.2	83.0
Clean air and water	63.8	71.5	84.8	64.8	55.8	37.2	67.7	65.1	62.5	64.9	63.0	63.6	62.3	66.2
Few environmental health risks	62.9	61.9	73.3	68.8	58.6	41.6	71.5	66.2	59.5	62.3	63.2	63.0	63.2	62.2
A low rate of unemployment	57.1	64.2	69.3	46.4	56.6	58.4	49.3	59.0	55.3	53.3	59.6	54.7	58.6	56.4
A low crime rate	43.9	7.3	53.7	17.6	72.1	60.6	51.2	46.3	41.6	41.7	45.6	42.9	45.9	41.7
No to all questions	.9	.6	.4	1.8	.6	1.8	.5	.9	1.0	.9	1.0	1.1	.9	.8
6. Compared with other health and safety risks, such as car accidents, food-borne illness, heart disease, and home fires, do you think the risk of chemicals produced, stored, or processed in your community/area is:														
Not a problem	13.4	11.5	10.5	20.6	8.7	6.2	21.5	15.2	11.6	14.7	12.6	13.9	12.0	15.4
A minor problem	37.9	40.1	41.4	38.9	35.8	21.7	47.7	39.1	36.7	38.3	37.8	39.6	36.6	39.2
A slightly serious problem	24.4	28.5	27.3	21.1	26.5	23.9	20.2	23.7	25.2	20.7	26.8	25.3	26.0	21.1
A serious problem	16.3	13.0	13.7	14.2	22.0	29.2	7.5	14.2	18.4	17.6	15.4	14.2	17.6	15.8
A very serious problem	6.3	4.3	5.0	4.5	6.1	17.3	1.7	6.9	5.7	7.0	5.9	6.1	6.7	5.6
Don't know	1.5	2.6	2.0	.6	.6	1.8	1.5	.8	2.3	1.7	1.4	.8	1.0	2.9
7. Do you think there are any facilities or locations in your area that pose a threat to the safety of the environment, such as a threat to the air, water, or soil?														
Yes	47.8	44.1	52.5	36.2	56.6	64.0	35.8	50.5	45.0	38.2	54.1	47.2	55.4	35.3
No	50.6	54.3	46.1	61.7	41.8	34.0	62.9	48.3	52.9	60.1	44.2	51.7	43.3	62.1
Don't know	1.6	1.6	1.4	2.0	1.6	2.0	1.3	1.2	2.1	1.7	1.6	1.0	1.3	2.7

* Questions omitted from this table were asked for screening purposes (1-4), misnumbered (31), or were identifiers for subsequent questions (23,24,41).

Question	Total	Community						Gender		Education		Age		
		Rich	Dur-	Albu	Cin-	Mid-	Ra-	Fe-	Male	MS	Coll	Less	More	More
		mond	ham	que	nati	ty	ty			or	or	30	50	50
								Male	male	less	more	yrs.	yrs.	yrs.

8. (Yes to Q. 7) Would you briefly describe the type of place or facility? (First mention)

Chemical manufacturing plant	42.6	68.2	57.4	8.2	38.8	47.8	24.5	43.6	41.4	38.1	44.9	42.5	43.0	42.9
Tobacco companies	2.8	14.3	3.4	0	0	.3	0	2.1	3.6	1.4	3.5	6.2	2.4	.3
Textile mills	1.6	4.9	3.4	.5	.3	.3	.5	1.4	1.9	.6	2.1	.9	2.2	.9
Steel mills	1.0	.4	0	.5	0	1.2	4.2	1.5	.4	1.2	.9	.6	1.2	.9
Pharmaceutical manufacturer	1.3	2.2	1.9	.5	.3	2.2	.5	.5	2.3	.6	1.7	1.2	1.6	.9
Soap/detergent manufacturing plant	.5	0	0	0	2.4	0	0	.3	.7	.4	.5	.3	.6	.3
Paint factories	.3	0	0	.5	.3	.6	0	.3	.3	.2	.3	.3	.1	.6
Industry/manufacturing (unspecified)	7.4	5.8	1.5	3.3	9.8	5.6	19.0	7.0	7.7	5.8	8.2	5.9	8.2	7.0
Chemical industry (net)	42.9	61.0	60.0	14.2	40.9	46.0	25.9	45.0	40.6	39.3	44.8	38.9	45.1	42.1
Chemical manufacturing plant	42.6	68.2	57.4	8.2	38.8	47.8	24.5	43.6	41.4	38.1	44.9	42.5	43.0	42.9
Chemical storage	3.9	1.8	6.4	3.3	7.0	2.5	1.4	4.5	3.1	3.9	3.9	1.5	4.9	3.8
Chemical distribution/suppliers	.9	.4	2.3	2.7	.7	0	0	1.4	.4	1.0	.9	.3	1.0	1.6
Garbage/waste disposal and storage facilities (net)	32.9	23.8	13.2	33.9	29.7	54.0	38.4	33.0	32.9	31.7	33.6	28.9	33.3	36.4
Landfill/garbage collection facility/dump	20.9	7.6	6.0	10.9	16.1	44.4	32.9	20.9	21.0	19.7	21.5	18.9	20.1	25.3
Hazardous waste disposal facility	10.8	8.5	6.8	21.9	12.9	11.5	5.1	10.6	11.1	8.9	11.9	8.8	11.7	10.4
Sewage treatment plant	4.0	11.2	1.1	3.8	2.8	4.0	1.9	4.7	3.3	4.8	3.7	3.2	4.8	2.8
Incinerator	1.1	.4	0	1.1	2.1	1.9	.9	1.0	1.3	.8	1.2	1.8	.7	1.3
Nuclear facility/power plant	19.0	10.3	38.1	16.4	35.3	1.6	11.1	19.0	19.0	12.4	22.2	12.8	20.0	15.5
Refinery	6.5	4.0	.4	3.8	4.2	20.2	1.4	6.9	6.0	7.5	6.1	7.1	6.3	6.6
General threats to the environment (net)	7.4	9.9	3.4	8.7	7.7	7.1	8.8	7.2	7.7	7.9	7.3	5.6	6.7	11.4
River/water pollution	5.2	5.8	1.5	3.8	6.3	5.3	8.3	5.2	5.1	7.0	4.3	4.4	4.1	8.9
Automobiles/auto exhaust	3.3	4.5	2.6	6.0	1.7	2.5	3.7	3.3	3.3	2.7	3.6	1.5	3.4	5.1
Research laboratory	4.3	.9	7.2	18.0	1.4	1.9	.5	5.4	3.1	4.8	4.2	3.8	4.9	3.5
Gasoline station	3.0	2.7	.8	12.0	1.7	2.8	.5	3.8	2.1	3.5	2.8	2.4	2.3	5.7
Military facility	2.7	.9	0	19.1	0	.9	0	2.9	2.4	2.1	2.9	1.2	3.5	1.9
Uranium plant	1.6	0	0	.5	8.0	0	0	2.3	.9	.6	2.1	2.1	1.7	.9
Construction/development	.9	.4	2.6	1.6	0	.6	0	.9	.9	.6	1.0	0	1.1	1.3
Farm supplier	.7	0	.4	.5	1.4	0	1.9	.5	.9	.8	.6	.6	.8	.3
High-tech/computer companies	1.3	0	3.4	4.9	0	.3	0	1.6	.9	.6	1.6	.9	1.8	.3

Question	Total	Community						Gender		Education		Age		
		Rich mond	Dur- ham	Albu- quer- que	Cin- cin- nati	Mid- dle- sex coun- ty	Ra- cine coun- ty	Fe- male	Male	HS or less	Coll or more	Less than 30 yrs.	30- 50 yrs.	More than 50 yrs.
Hospitals/medical schools	1.5	0	2.6	1.6	.3	3.1	.9	1.5	1.6	.8	1.9	1.8	1.4	1.6
Electrical plant	.3	.4	.4	0	0	0	1.4	.5	.1	.4	.3	0	.5	.3
Railroad	.5	0	.8	0	1.4	.3	.5	.4	.7	.6	.5	.3	.5	.9
Dry cleaners	.2	0	.8	0	0	.3	0	.3	.1	.2	.2	.6	.1	0
Other	15.3	8.5	10.2	15.3	15.0	10.6	35.6	17.4	12.9	13.7	16.1	16.5	15.8	12.7
Don't know	4.3	5.4	2.3	6.0	3.1	5.0	4.6	2.4	6.4	5.8	3.4	5.3	3.5	4.7
9. To what extent are you bothered by the facility that you mentioned first?														
A great deal	23.4	16.1	23.4	24.6	23.4	32.6	16.2	22.8	24.1	22.2	24.1	21.5	24.7	22.2
Somewhat	45.7	46.2	45.7	40.4	45.5	48.1	46.3	46.3	45.0	42.7	47.3	51.0	47.1	36.4
Not at all	26.3	32.3	27.9	29.0	27.6	14.3	31.9	28.2	24.1	29.2	24.8	22.1	24.2	36.4
Don't know	.2	0	.4	0	.3	0	.5	.1	.3	.2	.2	0	.2	.3
Don't know/refused type of place or facility (Q.8)	4.4	5.4	2.6	6.0	3.1	5.0	5.1	2.6	6.4	5.8	3.6	5.3	3.7	4.7
10. (Respondent bothered a great deal, Q. 9) Thinking about the facility,														
are you bothered a great deal, somewhat, or not at all by														
an unpleasant smell														
a great deal	33.1	30.2	20.2	21.0	31.0	52.3	30.4	30.8	35.7	43.1	28.6	41.1	30.7	29.2
somewhat	25.8	38.8	18.6	16.8	22.3	28.8	29.6	26.0	25.6	25.2	26.1	27.2	25.0	27.0
not at all	40.4	30.2	61.2	61.3	44.7	18.5	40.0	42.4	38.0	31.6	44.3	30.9	43.8	42.7
don't know	.6	.7	0	.8	1.5	.4	0	.5	.6	0	.8	.8	.3	1.1
the danger it poses to health in the long run														
a great deal	62.8	56.1	62.3	59.7	64.5	72.7	51.9	60.1	65.9	61.0	63.4	68.3	63.9	50.8
somewhat	33.2	40.3	32.2	35.3	30.5	25.0	45.2	35.2	31.0	33.2	33.4	27.6	33.1	42.2
not at all	3.7	3.6	3.8	5.0	5.1	2.3	3.0	4.4	2.9	5.4	2.9	4.1	2.7	6.5
don't know	.3	0	1.6	0	0	0	0	.4	.2	.3	.3	0	.3	.5
dust, dirt, or smoke in the air														
a great deal	36.5	35.3	24.6	31.9	38.6	48.5	31.9	31.5	42.1	44.4	33.1	41.5	34.4	36.2
somewhat	36.1	38.1	32.8	35.3	32.5	37.3	42.2	37.2	34.9	34.8	36.5	35.0	35.4	39.5

Question	Total	Community							Gender		Education		Age		
		Rich mond	Dur- ham	Albu- quer- que	Cin- cin- nati	Mid- dle- sex coun- ty	Ra- cine coun- ty		Fe- male	Male	HS or less	Some Coll or more	Less than 30 yrs.	More 30- 50 yrs.	More than 50 yrs.
not at all	27.1	26.6	42.6	32.8	27.9	14.2	25.2		31.1	22.5	20.8	30.0	23.2	29.9	24.3
don't know	.2	0	0	0	.5	0	.7		0	.4	0	.3	.4	.2	0
the possibility that a major accident could harm or kill people															
a great deal	51.2	44.6	63.9	61.3	54.3	51.5	26.7		46.3	56.8	56.5	48.9	54.9	52.2	42.7
somewhat	32.6	37.4	26.2	22.7	37.1	31.5	40.7		36.4	28.3	30.4	33.8	32.1	32.9	33.5
not at all	16.1	18.0	9.8	16.0	8.6	16.5	32.6		17.1	14.9	12.8	17.3	13.0	14.8	23.8
don't know	.1	0	0	0	0	.4	0		.2	0	.3	0	0	.2	0
the irritation it causes to eyes, nose, throat, or skin															
a great deal	37.9	33.1	33.9	40.3	39.1	47.3	25.9		32.1	44.4	47.6	33.7	41.5	37.1	35.7
somewhat	33.7	39.6	26.2	21.8	29.4	38.1	45.9		35.9	31.2	32.3	34.4	34.6	33.1	35.1
not at all	28.0	27.3	39.9	37.8	28.9	14.6	28.1		31.3	24.2	20.1	31.3	23.2	29.5	28.6
don't know	.4	0	0	0	.2	0	0		.5	.2	0	.6	.8	.2	.5
long-term damage to the environment															
a great deal	66.7	61.9	61.7	71.4	69.0	73.1	58.5		66.3	67.1	65.2	67.3	69.9	68.1	57.3
somewhat	28.6	33.8	31.1	23.5	26.4	24.6	34.8		28.2	28.9	29.1	28.4	26.0	28.0	34.1
not at all	4.4	4.3	7.1	5.0	3.6	1.9	5.9		4.9	3.7	5.8	3.8	4.1	3.5	7.6
don't know	.2	0	0	0	.5	.4	0		.2	.2	0	.3	0	.2	.5
a decrease in property values															
a great deal	26.2	23.0	21.9	27.7	23.4	34.2	23.0		26.0	26.4	29.7	24.7	30.1	25.3	23.2
somewhat	33.4	35.3	31.7	25.2	36.0	32.7	38.5		29.9	37.4	33.9	33.2	30.1	33.9	36.8
not at all	39.8	41.0	45.9	47.1	39.6	32.7	37.8		43.4	35.7	35.8	41.5	39.0	40.3	39.5
don't know	.5	.7	.5	0	.5	.4	.7		.5	.4	.6	.4	.8	.3	.5
11. Is there a _____ located near the place you live?															
gasoline station	79.0	81.2	79.2	79.8	79.6	86.3	69.9		78.8	79.3	77.8	79.9	89.1	80.1	69.1
dry cleaners	68.3	75.1	67.3	66.2	72.7	79.1	52.3		67.6	69.0	61.9	72.6	81.9	70.1	53.8
landfill	30.5	26.1	24.2	20.2	24.0	49.3	38.1		34.3	26.7	30.3	30.8	33.8	34.4	21.4
chemical manufacturing plant	29.8	29.1	34.9	8.9	35.8	54.1	18.7		33.0	26.7	26.4	32.2	35.1	33.2	20.0
sewage treatment plant	28.5	25.5	35.4	16.0	23.4	28.8	39.6		32.6	24.3	28.2	28.5	31.9	30.9	21.8
farm supplier	26.2	23.3	30.3	20.6	17.0	31.0	33.4		28.2	24.1	24.5	27.3	26.5	27.6	23.8
hazardous waste facilities	10.4	5.5	8.5	10.9	15.0	17.9	5.6		10.9	10.0	9.8	10.8	12.8	11.7	6.1

C-5

Question	Total	Richmond	Durham	Community				Gender		Education		Age		
				Albuquerque	Cincinnati	Mid-dle-coun-ty	Racine			HS or less	Some Coll or more	Less than 30 yrs.	30-50 yrs.	More than 50 yrs.
								Male	Fe-male					
incinerator	8.5	6.7	9.3	3.8	11.5	12.7	7.5	8.7	8.4	8.6	8.5	12.7	8.6	5.2
no to all	9.0	8.7	10.1	10.9	7.7	3.6	12.4	9.3	8.8	10.3	8.2	3.1	8.1	15.4
11/12. Is there a _____ near the place you live?														
Do you think the _____ poses a threat to the safety of the environment in your community?														
Chemical plant														
Yes - located in area (Q. 11)	29.8	29.1	34.9	8.9	35.8	54.1	18.7	33.0	26.7	26.4	32.2	35.1	33.2	20.0
Yes - poses threat (Q. 12)	65.7	61.2	76.1	66.7	66.3	75.0	31.9	62.2	70.1	61.4	68.3	65.9	67.3	60.9
No - does not pose threat (Q. 12)	33.0	36.1	22.7	33.3	32.6	23.5	68.1	36.6	28.4	37.7	30.2	33.3	30.7	39.1
Don't know (Q. 12)	1.3	2.7	1.1	0	1.1	1.5	0	1.2	1.4	.9	1.5	.8	2.0	0
No - not located in area (Q. 11)	68.5	70.4	63.4	89.1	62.2	42.9	80.3	65.7	71.3	72.1	66.0	62.7	65.1	78.7
Don't know (Q. 11)	1.7	.6	1.8	2.0	1.8	3.0	1.0	1.3	2.0	1.5	1.8	2.2	1.6	1.3
Dry cleaners														
Yes - located in area (Q. 11)	68.3	75.1	67.3	66.2	72.7	79.1	52.3	67.6	69.0	61.9	72.6	81.9	70.1	53.8
Yes - poses threat (Q. 12)	11.0	10.8	11.5	9.0	10.9	15.8	6.6	10.4	11.5	8.9	12.0	8.2	13.1	9.3
No - does not pose a threat (Q. 12)	85.9	86.6	87.1	87.2	86.4	78.1	91.8	86.5	85.4	88.4	84.6	90.5	83.2	86.9
Don't know (Q. 12)	3.1	2.6	1.5	3.9	2.7	6.0	1.6	3.1	3.2	2.7	3.3	1.4	3.7	3.7
No - not located in area (Q. 11)	31.5	24.9	32.7	33.4	27.1	20.5	47.4	32.2	30.8	37.9	27.1	17.8	29.8	45.9
Don't know (Q. 11)	.2	0	0	.4	0	.4	.3	.2	.2	.2	.2	.3	.1	.3
Farm supplier														
Yes - located in area (Q. 11)	26.2	23.3	30.3	20.6	17.0	31.0	33.4	28.2	24.1	24.5	27.3	26.5	27.6	23.8
Yes - poses threat (Q. 12)	13.9	5.9	14.4	15.4	18.6	19.2	11.4	11.5	16.8	10.6	15.8	10.0	16.9	11.3
No - does not pose threat (Q. 12)	85.7	94.1	85.0	83.7	80.2	80.8	88.6	88.3	82.7	88.7	84.0	88.9	83.1	88.3
Don't know (Q. 12)	.4	0	.7	1.0	1.2	0	0	.2	.5	.6	.2	1.1	0	.5
No - not located in area (Q. 11)	71.9	74.3	68.3	78.3	80.8	67.0	64.2	69.8	74.0	73.8	70.6	71.9	70.1	74.8
Don't know (Q. 11)	1.9	2.4	1.4	1.2	2.2	2.0	2.3	2.0	1.9	1.7	2.1	1.7	2.3	1.5
Gasoline station														
Yes - located in area (Q. 11)	79.0	81.2	79.2	79.8	79.6	86.3	69.9	78.8	79.3	77.8	79.9	89.1	80.1	69.1
Yes - poses threat (Q. 12)	15.7	14.4	16.5	17.1	12.9	23.5	9.7	15.6	15.9	13.0	17.4	14.7	18.3	11.5
No - does not pose a threat (Q. 12)	83.5	84.2	83.3	81.4	85.8	76.3	90.3	84.0	83.0	86.4	81.8	84.8	80.8	87.7
Don't know (Q. 12)	.8	1.5	.3	1.5	1.2	.2	0	.4	1.1	.6	.9	.5	.9	.8

Question	Total	Community							Education			Age		
		Richmond	Durham	Albuquerque	Cincinnati	Mid-dle-coun-ty	Racine	Gender		HS or less	Some Coll or more	Less than 30 yrs.	More than 30-50 yrs.	More than 50 yrs.
								Male	Female					
No - not located in area (Q. 11)	20.9	18.8	20.8	20.2	20.2	13.7	30.1	21.1	20.7	22.2	20.1	10.9	19.9	30.9
Incinerator														
Yes - located in area (Q. 11)	8.5	6.7	9.3	3.8	11.5	12.7	7.5	8.7	8.4	8.6	8.5	12.7	8.6	5.2
Yes - poses threat (Q. 12)	57.7	50.0	46.8	52.6	65.5	81.3	33.3	54.0	61.5	56.0	58.9	58.2	63.6	40.4
No - does not pose a threat (Q. 12)	41.9	50.0	53.2	47.4	34.5	18.8	64.4	46.0	37.7	3.7	40.5	40.7	36.4	59.6
Don't know (Q. 12)	.4	0	0	0	0	0	2.2	0	.8	0	.6	1.1	0	0
No - not located in area (Q. 11)	89.5	90.7	88.5	94.5	87.1	84.5	91.4	89.9	89.1	89.9	89.2	84.5	89.3	93.9
Don't know (Q. 11)	1.9	2.6	2.2	1.6	1.4	2.8	1.2	1.3	2.5	1.4	2.3	2.8	2.1	.9
Landfill														
Yes - located in area (Q. 11)	30.5	26.1	24.2	20.2	24.0	49.3	38.1	34.3	26.7	30.3	30.8	33.8	34.4	21.4
Yes - poses threat (Q. 12)	59.6	41.7	42.6	43.1	62.0	86.3	56.1	55.7	64.6	55.6	62.1	57.6	60.6	58.9
No - does not pose a threat (Q. 12)	39.6	55.3	56.6	55.9	38.0	13.3	43.5	43.1	34.9	43.9	36.8	42.4	38.3	40.1
Don't know (Q. 12)	.8	3.0	.8	1.0	0	.4	.4	1.1	.5	.5	1.1	0	1.2	1.0
No - not located in area (Q. 11)	67.9	72.3	74.1	78.3	73.5	48.7	61.6	65.0	70.8	67.9	67.8	64.9	64.0	76.8
Don't know (Q. 11)	1.6	1.6	1.8	1.6	2.6	2.0	.3	.7	2.5	1.8	1.5	1.3	1.6	1.8
Sewage treatment plant														
Yes - located in area (Q. 11)	28.5	25.5	35.4	16.0	23.4	28.8	39.6	32.6	24.3	28.2	28.5	31.9	30.9	21.8
Yes - poses threat (Q. 12)	34.0	48.1	22.3	43.2	39.8	53.1	17.6	30.0	39.5	30.0	36.9	39.7	37.6	18.5
No - does not pose a threat (Q. 12)	65.1	50.4	77.1	55.6	59.3	45.5	82.0	69.3	59.4	69.5	62.0	59.0	62.0	80.5
Don't know (Q. 12)	.9	1.6	.6	1.2	.8	1.4	.4	.8	1.1	.6	1.1	1.3	.4	1.0
No - not located in area (Q. 11)	69.8	73.7	63.2	82.6	74.5	66.8	60.1	66.3	73.4	70.6	69.4	66.9	67.4	76.2
Don't know (Q. 11)	1.7	.8	1.4	1.4	2.2	4.4	.3	1.1	2.3	1.2	2.1	1.3	1.7	2.0
Hazardous waste facility														
Yes - located in area (Q. 11)	10.4	5.5	8.5	10.9	15.0	17.9	5.6	10.9	10.0	9.8	10.8	12.8	11.7	6.1
Yes - poses threat (Q. 12)	82.2	82.1	81.4	72.7	88.2	87.8	70.6	80.7	83.9	77.4	85.0	82.6	81.8	81.8
No - does not pose threat (Q. 12)	16.3	17.9	18.6	23.6	9.2	11.1	29.4	18.1	14.2	21.8	13.0	16.3	.8	16.4
Don't know (Q. 12)	1.5	0	0	3.6	2.6	1.1	0	1.2	1.9	.8	2.0	1.1	1.7	1.8
No - not located in area (Q. 11)	87.1	92.9	88.5	88.3	82.6	77.7	91.6	87.1	87.1	88.2	86.3	85.2	85.4	91.6
Don't know (Q. 11)	2.5	1.6	3.0	.8	2.4	4.4	2.8	2.0	3.0	2.0	2.9	1.9	2.9	2.2

Question	Total	Community						Gender		Education		Age		
		Richmond	Durham	Albuquerque	Cincinnati	Middlesex county	Racine county			HS or less	Some Coll or more	Less than 30 yrs.	30-50 yrs.	More than 50 yrs.
								Male	Female					
13/14. In the past three months, have you read or heard anything about the risks of chemicals or hazardous wastes in your community?														
(If yes to Q. 13) In the past week, have you read or heard anything about the risks of chemicals or hazardous wastes in your community?														
Yes - past three months (Q. 13)	51.8	47.6	67.1	58.9	57.4	59.0	25.7	53.0	50.6	42.6	57.9	44.3	56.0	50.4
Yes - past week (Q. 14)	41.3	29.0	53.1	50.7	29.3	45.8	30.3	42.0	40.6	38.3	42.9	46.9	39.1	41.4
No - not in past week (Q. 14)	58.6	70.5	46.9	49.3	70.7	53.9	69.7	57.9	59.3	61.3	57.1	52.8	60.9	58.4
No - not in past three months (Q. 13)	48.0	52.4	32.7	40.9	41.6	40.8	74.3	46.9	49.0	57.0	42.0	55.6	43.8	49.1
Don't know (Q. 13)	.3	0	.2	.2	1.0	.2	0	.1	.4	.5	.1	.1	.2	.4
15. (If yes to Q. 14) What was the information that you heard or read?														
Transportation/storage/disposal information (net)	34.4	31.4	12.2	58.3	21.2	51.5	21.3	37.4	31.0	32.5	34.8	36.2	32.6	34.8
Water pollution information (net)	30.2	28.6	9.4	34.4	36.5	52.9	21.3	33.1	27.0	29.6	30.7	28.9	33.5	26.2
Accidental chemical leakage/discharge/spill	20.0	37.1	21.1	17.9	35.3	6.6	8.5	18.6	21.6	21.8	19.1	19.5	20.4	19.8
Chemical plant blew up/caught fire	16.6	0	60.0	0	1.2	.7	2.1	15.1	18.2	18.9	15.7	15.4	18.0	15.5
Air pollution information (net)	10.5	14.3	3.9	5.3	11.8	11.0	42.6	8.3	12.9	8.3	11.3	10.7	9.5	11.8
An evacuation was necessary	9.6	5.7	31.7	0	1.2	.7	2.1	6.3	13.2	9.2	9.8	12.1	10.4	6.4
Cleanup of hazardous materials/emissions	6.0	5.7	1.7	7.3	17.6	2.9	6.4	7.4	4.4	4.4	6.7	4.7	5.8	7.5
Debate over location of treatment/disposal plant or incinerator	4.9	2.9	5.0	4.6	2.4	9.6	0	5.7	4.1	5.8	4.6	3.4	4.9	5.9
Negative health effects	3.7	2.9	2.8	1.3	9.4	3.7	6.4	2.0	5.6	6.3	2.6	4.7	2.7	4.8
Dangerous businesses permitted in residential areas/landfill/chem. plant	3.4	0	3.9	2.0	2.4	5.9	6.4	2.9	4.1	3.9	3.3	3.4	3.0	4.3
Buildings/plants shut down	3.0	0	5.6	.7	4.7	0	10.6	2.3	3.8	4.4	2.2	2.7	1.8	4.8
Companies facing lawsuits/fines	.9	1.4	0	0	1.2	2.9	0	1.1	.6	.5	1.1	.7	1.2	.5
Work-related procedures/training	.7	1.4	.6	.7	2.4	0	0	.9	.6	0	1.1	1.3	.9	0
Radon	.6	1.4	0	0	1.2	1.5	0	.6	.6	0	.9	1.3	.6	0
Nuclear/chemical testing	.4	0	0	2.0	0	0	0	.3	.6	0	.7	.7	0	1.1
Right-to-know laws/new emissions laws	.4	1.4	0	0	1.2	0	2.1	.6	.3	.5	.4	2.0	0	0
Other	6.7	5.7	7.8	5.3	7.1	2.2	21.3	7.4	6.0	4.9	7.6	6.0	6.7	7.5
16. (If yes to Q. 14) Where did you read or hear this information?														
Newspapers (net)	76.4	65.7	80.0	76.2	60.0	88.2	74.5	80.0	72.4	74.3	77.4	70.5	75.6	82.9
Local newspapers	69.5	58.6	77.8	67.5	50.6	76.5	74.5	71.7	67.1	68.4	70.0	63.1	68.6	76.5
National newspapers	2.8	1.4	1.1	1.3	2.4	8.1	2.1	3.1	2.5	2.9	2.8	3.4	2.7	2.7

Question	Total	Richmond	Durham	Community				Gender Fe- Male	Male	Education		Age		
				Albuquerque	Cincinnati	Mid- dle- sex	Ra- cine coun- ty			HS	Coll	Less	More	
										or	or	than	30-	than
										less	more	yrs.	yrs.	yrs.
Other newspapers	6.2	5.7	1.7	7.94	8.27	11.7	0	7.7	4.7	4.9	6.9	7.4	6.4	5.3
Television/Radio (net)	72.6	77.1	81.1	80.1	77.6	58.1	42.6	66.3	79.6	77.2	70.4	70.5	71.3	75.9
Local television news	62.2	72.9	74.4	72.8	68.2	34.6	34.0	56.3	68.7	64.6	60.9	59.1	61.0	65.8
Radio	19.1	18.6	16.1	17.2	22.4	26.5	10.6	20.9	17.2	19.9	18.7	17.4	21.3	16.0
National television	10.5	8.6	2.8	7.3	5.9	30.1	4.3	7.2	13.8	15.5	8.3	8.7	8.8	15.0
Friends or neighbors	7.3	7.1	7.8	4.0	12.9	8.1	4.3	6.6	8.2	8.3	7.0	8.7	6.4	8.0
Magazines (net)	2.8	1.4	0	2.6	4.7	5.9	4.3	2.9	2.8	2.9	2.8	5.4	1.8	2.7
Newsweek	1.0	0	0	1.3	0	2.9	2.1	0.3	1.9	1.9	.7	2.0	.3	1.6
Time	1.0	0	0	.7	1.2	3.7	0	1.4	.6	.5	1.3	2.7	.6	.5
Other (specified)	1.3	1.4	0	.7	2.4	2.2	4.3	1.4	1.3	1.0	1.5	0	1.2	2.7
Government (net)	1.6	0	1.1	.7	3.5	1.5	6.4	2.3	.9	.5	2.2	2.7	1.5	1.1
Local government officials	1.0	0	1.1	0	2.4	.7	4.3	1.1	.9	.5	1.3	.7	1.2	1.1
State government officials	.6	0	0	0	1.2	0	6.4	1.1	0	0	.9	.7	.6	.5
National government officials	.3	0	0	.7	1.2	0	0	.3	.3	0	.4	1.3	0	0
Government publications	.3	0	0	0	1.2	.7	0	.6	0	0	.4	.7	.3	0
At work	1.6	2.9	1.7	.7	3.5	0	4.3	2.6	.6	1.5	1.7	2.0	1.8	1.1
Family members	1.5	0	1.7	.7	1.2	2.9	2.1	1.1	1.9	1.5	1.5	3.4	.9	1.1
Notices in mail	1.5	1.4	1.1	.7	2.4	1.5	4.3	1.7	1.3	.5	2.0	1.3	1.5	1.6
Town meetings	1.0	0	.6	.7	0	2.9	2.1	.9	1.3	1.0	1.1	.7	.9	1.6
Library	.3	0	0	0	0	.7	2.1	.6	0	.5	.2	1.3	0	0
Doctors or other health professionals	.1	0	0	0	1.2	0	0	0	.3	0	.2	.7	0	0
Local businesses	.1	0	0	.7	0	0	0	.3	0	0	.2	0	0	.5
Local emergency planning committee	.1	0	0	0	0	.7	0	0	.3	.5	0	0	0	.5
Other	6.3	2.9	3.3	7.3	4.7	6.6	21.3	6.3	4.4	7.2	6.7	6.1	6.4	6.7

17. Would you say you got a lot, some, or no information about the risks of chemicals in your community from _____?

Friends and relatives

A lot of information	7.4	5.5	7.5	4.2	8.1	14.1	5.1	7.0	7.7	6.5	7.9	9.1	7.8	5.2
Some information	35.1	36.0	38.8	31.6	31.7	40.6	32.3	32.8	37.3	32.2	37.0	36.9	39.2	26.6
No information	56.9	58.5	52.7	63.2	59.2	44.9	61.9	59.6	54.2	60.7	54.4	53.9	52.4	67.1

Question	Total	Richmond	Durham	Community				Gender		Education		Age			
				Albuquerque	Cincinnati	Mid-dle-coun-ty	Racine			HS or less	Some Coll or more	Less than 30 yrs.	30-50 yrs.	More than 50 yrs.	
								Male	Female						
Local emergency planning committees															
A lot of information	5.6	4.3	10.1	3.8	4.6	5.8	5.3	6.5	4.7	5.9	5.4	5.7	4.5	7.5	
Some information	30.6	29.1	35.2	32.6	31.5	22.5	32.1	28.8	32.4	30.5	30.7	30.4	30.8	30.2	
No information	60.8	63.4	52.1	61.5	61.6	66.4	59.8	61.9	59.6	60.9	60.7	61.8	61.7	58.1	
Not applicable	2.6	2.8	2.0	2.0	2.0	4.8	2.0	2.7	2.4	2.2	2.8	1.9	2.6	3.0	
Doctor															
A lot of information	3.3	3.4	3.6	1.4	4.8	4.6	2.5	3.4	3.3	3.6	3.2	4.3	3.2	2.8	
Some information	13.2	14.6	14.9	10.9	12.9	13.1	12.7	14.2	12.1	14.1	12.5	16.0	14.0	9.5	
No information	80.5	79.8	19.4	83.6	78.8	78.5	82.3	78.9	82.0	79.3	81.3	77.7	80.1	83.1	
Not applicable	2.8	2.2	2.2	3.8	3.4	3.6	2.2	3.2	2.4	2.8	2.9	1.8	2.5	4.4	
State government officials															
A lot of information	5.5	4.7	6.7	4.3	4.4	3.6	6.0	6.7	4.2	5.1	5.7	3.5	4.6	8.4	
Some information	44.6	43.5	44.2	49.6	45.0	44.3	41.9	44.1	45.2	37.3	49.7	42.2	47.1	42.5	
No information	49.2	51.2	47.5	42.9	50.3	51.3	51.8	48.7	49.8	57.2	43.9	53.9	47.7	48.2	
Officials who work for the chemical industry															
A lot of information	2.8	2.6	4.2	2.6	2.2	2.4	3.0	3.9	1.7	3.4	2.4	3.2	2.5	3.0	
Some information	21.1	22.9	27.3	20.2	23.6	14.1	18.7	20.1	22.1	20.1	21.8	24.5	21.3	17.9	
No information	73.3	71.7	65.1	73.5	72.3	79.9	76.5	74.0	72.5	73.5	73.1	71.7	74.3	72.9	
Not applicable	2.2	2.0	2.6	3.0	1.4	3.2	1.5	1.7	2.8	2.5	2.1	.1	1.3	5.2	
Federal government officials															
A lot of information	4.2	5.1	4.8	4.5	5.0	2.4	3.3	5.5	2.8	3.3	4.7	4.3	3.5	5.1	
Some information	40.9	39.9	40.8	45.8	45.7	35.8	37.7	41.1	40.6	35.0	44.8	39.4	43.4	38.1	
No information	54.0	53.6	52.9	48.8	48.9	61.2	57.9	52.8	55.3	60.7	49.5	56.0	52.4	55.0	
Environmental groups															
A lot of information	21.0	17.0	26.7	26.9	21.6	19.1	15.6	21.7	20.3	15.7	24.6	21.3	22.3	18.3	
Some information	46.9	50.0	45.5	46.4	47.1	45.5	46.9	48.8	45.0	41.1	50.8	46.5	50.3	41.7	
No information	31.2	32.0	26.5	26.3	30.3	34.0	37.1	28.8	33.7	42.1	23.9	31.3	27.0	38.2	
People you know who work for the chemical industry															
A lot of information	5.4	4.9	4.8	3.	5.7	8.3	5.6	7.1	3.7	5.4	5.5	5.2	6.2	4.5	
Some information	17.4	18.2	20.8	14.8	19.0	16.3	15.6	17.1	17.7	16.0	18.3	21.0	19.9	10.3	
No information	57.4	60.3	50.1	55.1	57.6	58.4	61.9	59.5	55.3	55.4	58.8	62.7	58.4	51.6	
Not applicable	19.0	16.0	23.0	26.1	17.0	16.3	16.2	15.7	22.4	22.3	16.8	10.3	14.8	32.8	

Question	Total	Community						Gender		Education		Age		
		Rich mond	Dur- ham	Albu- quer- que	Cin- cin- nati	Mid- dle- coun- ty	Ra- cine coun- ty	Male	Fe- male	HS or less	Some Coll or more	Less than 30 yrs.	30- 50 yrs.	More than 50 yrs.
Local government officials														
A lot of information	5.1	3.2	7.1	6.7	5.9	3.8	4.1	6.0	4.2	4.5	5.6	3.8	4.1	7.8
Some information	44.0	42.7	46.7	50.2	47.5	36.6	41.1	42.9	45.2	36.0	49.5	42.5	47.5	39.6
No information	49.9	53.2	44.8	42.3	45.3	59.0	54.0	50.3	49.4	58.2	44.2	53.1	47.8	50.8
News reporters														
A lot of information	26.8	27.1	31.7	32.4	31.5	26.0	14.7	27.6	26.1	24.1	28.8	25.9	27.8	25.9
Some information	54.3	56.7	54.9	53.2	55.6	52.5	53.0	54.5	54.0	48.6	58.1	57.1	56.7	48.0
No information	18.6	15.6	13.3	14.2	12.7	21.1	32.0	17.6	19.6	26.7	13.0	16.7	15.3	25.6
18. Would you say you trust _____ a lot, some, or not at all when it comes to finding out about the risks of chemicals in your community?														
Friends and relatives														
Trust a lot	34.0	34.0	35.2	26.5	33.9	40.4	34.3	32.3	35.8	36.9	32.1	36.8	32.9	34.0
Trust somewhat	49.4	50.6	48.1	51.0	46.3	48.1	52.0	49.5	49.4	46.0	51.8	50.4	52.6	43.2
Do not trust at all	13.2	13.4	11.9	17.6	15.8	8.3	12.1	14.2	12.2	14.2	12.5	11.1	12.3	16.2
Not applicable	3.0	2.0	4.2	4.2	3.8	2.8	1.7	3.6	2.4	2.7	3.2	1.3	1.8	6.4
Local emergency planning committees														
Trust a lot	27.9	29.4	30.1	25.3	26.3	23.9	31.5	27.7	28.0	25.6	29.4	33.7	26.1	26.5
Trust somewhat	53.7	52.2	53.5	54.3	54.5	52.9	54.6	51.7	55.7	56.0	52.2	54.5	54.6	51.3
Do not trust at all	13.0	12.6	11.9	14.8	14.9	14.9	9.8	14.2	11.8	14.7	11.9	8.6	13.9	15.1
Not applicable	4.8	4.9	4.6	4.9	3.4	7.6	3.8	5.7	3.9	3.2	5.9	3.2	4.8	6.1
Your doctor														
Trust a lot	46.4	44.7	44.0	39.3	50.5	48.1	50.8	44.7	48.1	49.5	43.9	49.6	44.3	47.2
Trust somewhat	34.1	38.1	34.1	36.8	29.1	33.4	33.4	35.1	33.1	32.3	35.4	35.2	37.6	27.5
Do not trust at all	14.2	13.2	15.8	18.0	14.1	12.5	12.1	14.0	14.4	14.0	14.5	11.6	13.5	17.4
Not applicable	5.0	3.8	5.7	5.9	5.9	5.6	3.3	5.9	4.1	4.0	5.7	3.5	4.2	7.6
State government officials														
Trust a lot	12.0	13.8	11.1	11.7	10.5	8.2	16.2	12.9	11.2	12.9	11.5	12.7	9.9	15.3
Trust somewhat	65.1	65.8	65.9	65.8	64.8	62.6	65.6	65.3	64.9	61.4	67.6	66.0	65.3	64.0
Do not trust at all	22.3	20.2	22.0	21.9	24.4	28.4	18.0	21.3	23.4	25.2	20.5	21.3	24.3	19.6

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Question	Total	Community							Gender		Education		Age		
		Richmond	Durham	Albuquerque	Cincinnati	Mid-dle-coun-ty	Racine	HS or less			Some Coll or more	Less than 30 yrs.	30-50 yrs.	More than 50 yrs.	
									Male	Fe-male					
Officials who work for the chemical industry															
Trust a lot	8.3	9.7	8.9	7.9	7.1	5.4	10.6	8.9	7.8	10.3	6.9	12.7	5.5	9.7	
Trust somewhat	45.8	45.8	49.9	45.3	50.1	34.8	48.5	43.0	48.6	47.5	44.7	51.5	45.6	41.7	
Do not trust at all	43.4	42.1	38.6	43.9	41.6	56.7	38.4	45.8	40.9	39.1	46.4	35.5	47.4	42.7	
Not applicable	2.1	2.0	1.8	2.4	1.0	3.2	2.2	1.9	2.3	2.5	1.8	.3	1.4	4.7	
Federal government officials															
Trust a lot	11.6	12.1	13.5	11.9	10.3	8.2	13.6	12.8	10.5	12.3	11.2	12.8	9.9	13.8	
Trust somewhat	64.0	64.8	62.0	64.0	63.4	63.2	66.2	63.9	64.2	59.4	67.3	65.7	66.4	58.9	
Do not trust at all	23.4	22.1	22.6	23.7	25.1	27.8	19.5	22.7	24.1	26.9	20.8	21.4	23.1	24.9	
Environmental groups															
Trust a lot	40.1	39.9	39.2	37.0	37.0	44.5	42.5	38.5	41.7	35.4	43.2	43.9	41.6	34.9	
Trust somewhat	51.0	51.0	52.7	53.8	52.1	46.3	50.3	52.1	49.9	51.7	50.6	49.3	52.0	50.7	
Do not trust at all	8.0	8.5	6.9	8.9	9.3	8.2	6.3	8.9	7.0	11.5	5.5	6.7	6.0	12.2	
People you know who work for the chemical industry															
Trust a lot	18.7	19.8	18.2	12.5	17.0	26.6	18.0	19.0	18.3	17.7	19.2	25.9	18.9	12.5	
Trust somewhat	38.9	39.9	37.4	36.4	40.6	33.0	44.7	39.4	38.4	37.7	39.8	42.8	43.4	28.7	
Do not trust at all	20.3	21.9	17.0	22.1	21.8	21.9	17.4	22.7	17.8	20.0	20.4	19.5	20.0	21.1	
Not applicable	21.3	18.0	26.3	27.7	19.8	17.7	18.9	17.9	24.8	23.6	19.8	11.0	17.7	36.4	
Local government officials															
Trust a lot	11.3	11.3	11.9	9.3	10.3	9.1	15.4	11.8	10.9	11.8	11.1	9.3	9.3	16.6	
Trust somewhat	65.4	64.2	66.5	67.6	68.5	58.1	66.9	65.6	65.1	61.2	68.1	69.8	66.5	59.7	
Do not trust at all	22.3	23.5	19.6	22.7	20.0	32.2	17.1	21.8	22.8	25.7	20.1	20.8	23.5	21.7	
News reporters															
Trust a lot	26.6	29.2	28.5	25.9	30.1	25.8	21.2	26.2	27.0	28.3	25.5	28.0	26.4	25.9	
Trust somewhat	64.1	63.4	63.4	63.4	62.6	64.6	66.6	63.2	64.9	61.2	66.1	64.6	65.7	61.0	
Do not trust at all	8.8	6.5	7.3	10.5	6.5	8.9	12.3	9.8	7.8	9.9	8.0	7.2	7.6	11.9	
19. Would you say _____ are very, somewhat, or not at all knowledgeable about the risks of chemicals in your community?															
Friends and relatives															
Very knowledgeable	8.9	10.3	10.3	4.7	9.1	11.1	8.1	8.1	9.8	11.2	7.3	7.2	8.3	11.2	
Somewhat knowledgeable	63.4	60.7	66.3	62.1	59.8	64.2	66.6	61.3	65.5	61.6	64.5	64.5	65.5	59.0	
Not at all knowledgeable	25.5	26.9	20.4	30.4	28.7	22.9	24.2	28.3	22.7	25.0	26.0	27.4	25.2	24.7	

Question	Total	Community						Gender		Education		Age		
		Rich mond	Dur- ham	Albu- quer- que	Cin- cin- nati	Mid- dle- sex coun- ty	Ra- cine coun- ty	Gender		Education		Age		
								Fe- male	Male	HS or less	Coll or more	Less than 30 yrs.	30- 50 yrs.	More than 50 yrs.
Local emergency planning committees														
Very knowledgeable	33.2	32.0	41.8	30.6	32.3	31.4	31.5	33.3	33.1	32.0	33.9	38.3	32.5	30.4
Somewhat knowledgeable	55.8	56.1	50.7	57.3	56.2	54.5	59.4	55.2	56.4	57.0	55.0	54.7	57.0	54.6
Not at all knowledgeable	5.6	5.1	3.2	7.3	6.1	6.2	5.8	6.3	5.0	7.0	4.7	3.9	5.5	7.3
Not applicable	4.1	5.3	4.0	4.0	3.0	6.2	2.5	4.3	3.9	2.2	5.4	2.2	4.2	5.5
Your doctor														
Very knowledgeable	26.7	23.5	29.3	24.9	26.7	27.6	27.6	27.6	25.7	29.8	24.3	26.6	23.2	32.0
Somewhat knowledgeable	56.2	60.1	56.2	52.6	55.8	55.9	56.5	54.6	57.8	52.9	58.5	60.0	60.8	45.8
Not at all knowledgeable	11.8	11.3	9.1	15.6	11.3	11.5	11.8	12.5	11.0	11.7	11.9	10.6	11.3	13.5
Not applicable	4.0	3.0	4.4	5.3	4.4	4.0	6.0	4.4	3.5	3.8	4.1	2.2	3.7	5.9
State government officials														
Very knowledgeable	28.7	27.9	30.5	22.9	27.3	33.4	30.1	27.2	30.2	31.8	26.5	29.7	28.8	27.8
Somewhat knowledgeable	62.8	63.4	62.6	67.2	63.6	56.5	63.4	63.5	62.1	58.8	65.7	63.2	62.9	62.7
Not at all knowledgeable	7.6	7.1	5.7	9.5	8.1	9.5	6.1	8.9	6.4	8.0	7.3	6.5	8.1	7.5
Officials who work in the chemical industry														
Very knowledgeable	58.3	57.5	58.0	57.1	55.8	64.8	56.6	60.9	55.6	52.5	62.3	65.5	60.5	49.0
Somewhat knowledgeable	33.2	36.2	34.9	33.0	36.8	25.2	33.1	30.1	36.4	36.6	30.8	29.7	33.4	35.6
Not at all knowledgeable	5.7	3.2	4.0	5.9	5.3	8.0	7.5	6.7	4.6	7.2	4.6	4.3	4.7	8.3
Not applicable	1.9	2.0	2.0	2.6	1.4	1.6	1.8	1.5	2.3	2.4	1.6	0	.9	5.1
Federal government officials														
Very knowledgeable	35.8	34.4	39.0	35.2	34.1	39.4	33.3	36.7	34.9	38.1	34.3	35.4	36.6	34.8
Somewhat knowledgeable	56.2	57.5	54.5	57.7	56.0	50.5	60.4	54.8	57.7	51.6	59.5	57.0	56.8	54.9
Not at all knowledgeable	6.9	6.5	5.5	5.9	8.3	9.3	5.8	7.6	6.2	8.7	5.6	7.1	6.1	7.8
Environmental groups														
Very knowledgeable	53.4	51.2	54.5	47.0	53.3	59.8	54.6	51.1	55.8	47.9	57.3	57.9	56.2	45.5
Somewhat knowledgeable	42.4	44.9	42.2	48.4	42.4	36.0	41.1	44.9	40.0	45.4	40.3	38.9	41.0	47.3
Not at all knowledgeable	3.1	2.4	2.0	3.8	3.8	3.4	3.5	3.5	2.8	5.1	1.8	2.8	2.5	4.6
People you know who work for the chemical industry														
Very knowledgeable	29.5	28.7	29.3	24.9	27.7	34.6	31.3	32.7	26.2	26.3	31.7	33.6	31.8	22.5
Somewhat knowledgeable	41.0	44.3	38.0	37.2	45.9	39.2	41.2	40.4	41.5	39.9	41.7	49.0	42.6	31.9
Not at all knowledgeable	7.6	8.3	5.7	7.9	5.9	8.9	8.8	8.4	6.9	10.8	5.5	6.3	7.8	8.5
Not applicable	21.1	18.6	26.1	29.2	19.2	16.7	17.5	17.8	24.5	22.1	20.4	10.2	17.3	35.8

Question	Total	Community						Gender		Education		Age		
		Rich mond	Dur- ham	Albu- quer- que	Cin- cin- nati	Mid- dle- sex coun- ty	Ra- cine coun- ty	Male	Fe- male	HS or less	Coll or more	Less than 30 yrs.	30- 50 yrs.	More than 50 yrs.
Local government officials														
Very knowledgeable	22.4	21.7	21.2	20.6	22.4	25.0	23.2	22.0	22.8	25.9	19.9	24.2	20.5	23.8
Somewhat knowledgeable	66.7	66.4	69.5	67.4	68.7	57.7	69.7	65.3	68.0	62.2	69.8	67.0	68.7	63.3
Not at all knowledgeable	9.6	9.9	7.7	10.5	7.7	15.9	6.5	11.7	7.5	9.9	9.3	8.4	9.7	10.2
News reporters														
Very knowledgeable	17.3	18.4	17.4	17.0	20.4	17.3	14.1	17.0	17.6	21.0	14.8	14.3	15.3	23.2
Somewhat knowledgeable	73.5	73.3	74.9	72.9	71.9	71.8	76.0	71.2	75.9	70.2	75.8	76.9	75.9	67.0
Not at all knowledgeable	8.4	6.9	6.9	9.5	7.5	9.9	9.6	11.1	5.7	7.9	8.8	8.5	8.2	8.6
20. Would you say you know a lot, a little, very little or nothing about _____?														
The location of facilities in your area where chemicals are stored or used														
Know a lot	12.0	8.9	15.4	12.3	11.5	14.1	10.4	16.1	7.9	8.9	14.1	12.7	12.9	10.2
Know a little	32.8	29.8	36.4	29.6	35.6	35.2	30.6	35.5	30.1	26.3	37.3	33.0	35.4	28.5
Know very little	33.2	38.3	30.7	34.4	30.1	30.8	34.8	30.1	36.4	35.4	31.8	32.6	33.6	33.0
Know nothing	21.8	22.9	17.4	23.3	22.6	19.9	24.2	18.3	25.4	29.3	16.8	21.7	18.1	28.0
Releases of chemicals into the atmosphere														
Know a lot	7.8	7.9	7.1	8.5	9.3	8.7	5.8	10.4	5.2	6.3	8.9	6.8	7.7	9.0
Know a little	35.5	32.2	36.0	34.2	35.6	39.0	35.8	37.1	33.8	28.3	40.4	35.5	37.7	31.6
Know very little	36.6	37.7	36.2	37.0	36.0	35.8	36.9	35.4	37.9	38.5	35.2	36.8	37.0	35.8
Know nothing	20.0	21.9	20.6	20.4	19.0	16.5	21.5	17.1	23.0	26.9	15.4	20.9	17.5	23.5
The quality of your area's drinking water														
Know a lot	23.7	17.8	22.8	26.5	25.0	22.9	27.0	28.0	19.4	20.1	26.0	20.2	22.3	28.9
Know a little	41.3	39.9	43.4	43.3	40.0	40.0	41.1	40.2	42.3	36.2	44.8	40.6	43.9	37.5
Know very little	26.0	31.4	24.6	24.7	26.1	26.8	23.0	24.2	27.9	30.8	22.8	29.1	25.7	24.2
Know nothing	8.8	10.5	9.3	5.5	8.9	10.1	8.6	7.6	10.1	12.7	6.2	10.4	8.0	9.0
Community right-to-know laws														
Know a lot	10.5	7.1	12.3	10.5	10.1	13.7	9.4	13.1	7.8	7.2	12.7	9.9	10.4	11.3
Know a little	34.2	30.0	35.8	33.6	37.0	34.0	34.8	35.9	32.5	31.7	35.9	29.9	36.2	34.2
Know very little	35.3	39.9	31.9	34.6	34.9	34.0	36.1	33.8	36.7	37.5	33.8	37.5	36.4	31.9
Know nothing	19.7	22.9	19.6	21.1	17.4	17.9	19.4	16.9	22.6	23.1	17.3	22.4	17.0	21.9

Question	Total	Community						Gender		Education		Age		
		Richmond	Durham	Albuquerque	Cincinnati	Mid-dle-sex county	Racine county	Male	Female	HS or less	Coll or more	Less than 30 yrs.	30-50 yrs.	More than 50 yrs.
Emergency preparedness plans in your area														
Know a lot	8.6	7.7	12.7	9.3	7.1	5.8	8.9	9.7	7.5	7.7	9.1	8.1	8.7	8.9
Know a little	28.4	25.5	36.0	27.3	28.5	20.3	32.0	28.6	28.1	28.4	28.4	24.7	28.6	31.1
Know very little	33.4	34.8	25.1	35.2	37.4	35.4	32.8	34.0	32.9	34.1	33.0	33.3	33.4	33.8
Know nothing	29.4	32.0	25.9	28.1	26.9	38.0	26.2	27.6	31.2	29.5	29.3	33.8	29.3	25.8
Hazardous waste facilities in your area														
Know a lot	10.1	7.9	9.9	14.4	9.3	9.5	9.8	12.8	7.5	7.1	12.0	8.9	10.1	11.0
Know a little	32.6	25.9	37.8	32.2	34.5	35.4	30.3	32.4	32.8	28.0	35.8	30.4	34.3	31.8
Know very little	33.5	38.1	31.9	31.8	35.2	30.8	33.3	32.3	34.8	38.0	30.7	33.6	33.5	33.7
Know nothing	23.4	27.7	19.8	21.1	21.0	23.7	26.3	22.3	24.4	26.6	21.2	27.0	21.9	22.5
Activities to clean up accidental spills of hazardous materials														
Know a lot	10.6	10.3	11.3	12.3	10.5	9.7	9.8	12.8	8.4	8.3	12.0	7.7	10.2	13.7
Know a little	35.5	34.4	40.8	37.0	33.5	34.6	33.3	36.3	34.7	30.9	38.6	31.9	37.2	35.3
Know very little	32.4	32.8	29.7	31.4	35.8	31.4	33.1	31.1	33.7	35.7	30.3	32.0	32.7	32.4
Know nothing	21.3	22.5	18.2	19.0	20.0	26.3	23.5	19.7	23.0	25.0	18.8	28.4	19.7	18.4
The risks of chemicals in your area														
Know a lot	13.1	11.1	12.9	15.6	13.3	15.9	10.4	16.4	9.7	10.4	14.8	11.1	13.6	13.7
Know a little	41.3	40.1	46.5	37.0	41.8	42.9	39.6	42.2	40.3	32.8	47.0	40.0	44.0	37.6
Know very little	31.6	62.0	29.3	34.2	31.7	28.8	33.3	28.6	34.6	37.1	28.0	31.8	31.0	32.8
Know nothing	14.0	16.8	11.3	13.0	13.1	12.3	16.7	12.7	15.3	19.7	10.1	17.0	11.3	15.8
21. Would you strongly agree, somewhat agree, somewhat disagree, or strongly disagree that _____?														
The Federal government is doing a good job cleaning up the environment														
Strongly agree	7.9	9.9	7.9	8.7	7.9	6.4	6.8	8.8	6.9	10.7	6.0	5.6	5.4	14.1
Somewhat agree	32.8	32.4	33.7	30.6	35.0	25.2	38.6	33.4	32.2	33.5	32.3	35.2	31.0	34.0
Somewhat disagree	25.0	26.3	26.9	21.5	26.5	24.7	24.0	23.9	26.1	22.5	26.7	32.3	25.1	19.1
Strongly disagree	33.3	29.8	30.7	38.1	29.5	42.9	29.5	33.0	33.6	31.8	34.3	26.7	37.8	30.6
Don't know	1.0	1.4	.8	1.0	.8	.6	1.2	.7	1.2	1.5	.6	.1	.6	2.1

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Question	Total	Community						Gender		Education		Age			
		Richmond	Durham	Albuquerque	Cincinnati	Mid-dle-coun-ty	Ra-cine			HS or less	Some Coll or more	Less than 30 yrs.	30-50 yrs.	More than 50 yrs.	
								Male	Female						
We should assume a chemical is safe unless tests prove it to be dangerous															
Strongly agree	14.4	16.0	10.9	14.6	14.7	15.9	14.4	14.9	14.0	20.9	10.0	13.2	10.5	22.1	
Somewhat agree	15.9	13.0	17.8	11.9	19.6	12.5	19.5	15.7	16.0	20.6	12.6	16.2	12.6	21.2	
Somewhat disagree	18.2	16.4	21.6	19.6	17.4	16.1	17.9	17.9	18.4	14.3	20.8	22.0	18.7	14.1	
Strongly disagree	51.3	54.2	49.3	53.6	48.1	55.3	48.0	51.4	51.2	43.8	56.3	48.6	58.0	41.9	
Chemicals have improved our health more than they have harmed it															
Strongly agree	15.5	15.0	15.6	17.2	17.2	13.1	14.9	20.5	10.4	13.1	17.1	12.0	14.9	19.2	
Somewhat agree	34.4	36.2	31.7	35.0	35.0	30.0	37.7	37.3	31.5	28.3	38.5	37.2	34.0	32.8	
Somewhat disagree	22.9	23.5	23.6	19.4	20.0	25.6	24.8	19.9	25.9	22.9	22.9	26.9	24.0	18.0	
Strongly disagree	24.3	22.5	25.1	25.7	24.8	27.6	20.7	20.2	28.4	32.8	18.6	22.6	24.9	24.4	
Don't know	2.6	2.6	3.2	2.8	2.8	3.0	1.7	1.7	3.5	2.8	2.5	1.4	1.7	5.2	
Any release of chemicals into soil, water, or air is unacceptable															
Strongly agree	41.5	34.4	38.2	41.1	39.2	54.3	42.1	37.4	45.8	49.0	36.6	35.5	41.0	47.3	
Somewhat agree	21.5	22.9	20.2	21.7	24.0	16.7	23.2	21.8	21.2	18.7	23.6	28.3	20.2	18.5	
Somewhat disagree	22.9	27.3	26.1	24.3	20.4	17.1	22.2	25.5	20.2	17.7	26.3	25.3	25.4	16.6	
Strongly disagree	12.9	13.8	14.3	11.5	15.2	11.1	11.8	14.5	11.3	13.6	12.3	10.3	12.6	15.5	
Planned releases of chemicals into the air, water, or soil are generally safe															
Strongly agree	5.1	5.3	4.8	5.7	5.1	5.0	4.6	6.0	4.1	5.6	4.7	4.3	3.5	8.5	
Somewhat agree	22.1	22.9	22.2	21.7	24.2	16.1	25.0	24.3	19.9	19.2	24.1	25.1	21.4	21.1	
Somewhat disagree	28.3	30.6	29.9	28.9	26.7	24.7	29.1	28.8	27.9	25.2	30.5	33.4	30.1	21.7	
Strongly disagree	43.0	38.3	41.6	42.5	42.6	53.1	40.4	39.8	46.2	48.7	39.0	36.5	43.8	46.3	
The only time the public hears about the release of toxic chemicals is when the problem is so big it can't be kept secret anymore															
Strongly agree	65.3	61.9	58.6	63.0	67.9	75.9	64.7	60.4	70.3	68.9	62.9	62.0	67.8	63.8	
Somewhat agree	20.3	22.3	24.0	19.2	19.0	14.3	22.4	23.4	17.1	17.1	22.5	25.8	18.8	18.3	
Somewhat disagree	8.1	8.7	9.7	10.5	7.3	4.0	8.1	9.4	6.7	6.5	9.2	8.5	7.6	8.5	
Strongly disagree	6.0	6.7	7.5	6.7	5.3	5.6	4.6	6.5	5.5	7.0	5.3	3.8	5.7	8.4	

Question	Total	Community						Gender		Education		Age		
		Richmond	Durham	Albuquerque	Cincinnati	Mid-dlesex county	Racine county	Male	Female	HS or less	Some Coll or more	Less than 30 yrs.	30-50 yrs.	More than 50 yrs.
It's not how much of a chemical you are exposed to that matters to your health, it's whether or not you're exposed at all														
Strongly agree	39.2	40.9	38.2	39.7	36.8	40.2	39.6	35.7	42.8	43.3	36.5	36.2	38.2	43.3
Somewhat agree	23.5	25.1	20.6	21.9	24.2	23.7	25.0	24.9	22.0	22.0	24.4	22.6	24.1	23.3
Somewhat disagree	17.0	15.0	17.8	19.4	17.0	14.7	18.0	19.4	14.7	13.3	19.6	21.6	17.7	12.4
Strongly disagree	18.6	16.6	22.0	17.4	20.6	19.7	16.1	18.7	18.5	19.8	17.8	19.2	18.7	17.7
If a person is exposed to a chemical that can cause cancer, then that person is likely to get cancer later in life														
Strongly agree	37.5	36.4	33.3	34.0	39.8	42.9	38.4	34.2	40.8	50.2	28.8	33.7	36.0	43.2
Somewhat agree	35.8	34.8	38.4	34.6	34.1	35.6	37.3	35.2	36.5	31.3	39.0	43.5	37.0	27.6
Somewhat disagree	18.3	19.0	20.0	21.1	17.4	15.3	17.2	20.4	16.2	11.7	22.8	17.7	19.0	17.6
Strongly disagree	6.5	6.7	5.7	8.1	6.9	5.0	6.3	7.9	5.0	5.7	7.0	4.6	5.9	8.8
Don't know	1.6	2.8	2.2	2.0	1.4	.8	.8	1.8	1.4	1.1	2.0	.4	1.6	2.6
There are some chemical risks that are too small to worry about														
Strongly agree	16.8	16.2	16.6	18.0	18.2	15.5	16.6	21.1	12.5	15.6	17.6	13.0	15.6	22.0
Somewhat agree	26.4	28.3	26.1	28.9	25.0	22.3	27.6	28.0	24.8	22.1	29.4	25.2	28.4	24.1
Somewhat disagree	21.1	19.6	19.6	20.9	23.0	23.7	20.0	20.0	22.2	20.6	21.4	24.8	21.1	18.2
Strongly disagree	35.3	36.0	36.2	31.6	33.5	38.6	35.8	30.7	39.9	41.0	31.5	37.0	34.5	34.9
I feel that I am involved in environmental decisions that may affect my health														
Strongly agree	20.9	19.2	21.4	19.8	21.4	22.3	21.4	19.7	22.1	28.1	16.0	19.4	18.1	27.0
Somewhat agree	22.2	21.7	21.0	20.0	20.0	21.7	27.8	23.2	21.2	22.9	21.6	22.7	22.3	21.7
Somewhat disagree	24.2	26.9	26.3	27.5	22.0	19.1	23.7	24.2	24.3	21.4	26.2	26.7	23.3	23.4
Strongly disagree	31.7	31.4	30.1	32.4	34.9	36.2	26.2	32.3	31.0	26.3	35.4	30.6	35.3	26.5
Local businesses are usually very careful with dangerous chemicals														
Strongly agree	13.3	14.2	14.9	10.7	11.1	8.9	19.0	13.5	13.2	17.8	10.3	11.6	10.0	20.3
Somewhat agree	31.9	29.6	33.5	32.4	32.7	25.0	37.3	30.7	33.1	32.1	31.8	33.0	31.2	32.5
Somewhat disagree	27.9	29.6	28.7	27.9	28.7	30.2	23.3	28.6	27.3	23.0	31.3	32.3	29.9	21.3
Strongly disagree	25.2	24.3	21.8	27.5	25.7	34.6	18.9	26.3	24.1	25.4	25.1	22.3	27.6	23.3
Don't know	1.5	2.2	1.0	1.6	1.4	1.2	1.5	.8	2.2	1.6	1.4	.8	1.1	2.5
Burying toxic wastes in landfills is not a serious problem														
Strongly agree	6.1	7.7	6.5	4.3	5.5	5.2	7.1	6.2	6.0	8.5	4.5	3.3	4.7	10.8

Question	Total	Community						Gender		Education		Age		
		Rich mond	Dur- ham	Albu- quer- que	Cin- cin- nati	Mid- dle- sex coun- ty	Ra- cine coun- ty	Gender		HS or less	Coll or more	Age		
								Fe- male	male			Less than 30 yrs.	30- 50 yrs.	More than 50 yrs.
Somewhat agree	7.7	7.7	9.7	7.7	7.5	4.2	9.1	8.4	6.9	8.5	7.1	7.2	7.1	9.0
Somewhat disagree	16.2	17.2	18.0	18.6	17.0	10.7	15.9	15.5	17.0	15.6	16.7	21.9	14.0	15.5
Strongly disagree	69.1	66.2	64.6	68.2	69.3	79.5	67.4	69.2	69.0	66.5	71.0	66.9	73.5	63.4
Local officials are interested in what the public has to say about chemicals in the area														
Strongly agree	18.1	16.2	18.6	16.6	17.6	16.5	22.4	19.0	17.2	21.5	15.8	14.6	14.3	27.2
Somewhat agree	40.9	39.9	41.8	42.7	40.4	35.0	44.9	41.6	40.2	34.8	45.2	41.6	42.1	38.7
Somewhat disagree	22.6	25.7	22.6	20.0	23.6	26.4	18.4	22.6	22.7	22.2	22.9	27.6	24.2	16.0
Strongly disagree	17.6	17.4	15.8	20.2	18.0	21.3	13.9	16.4	18.9	21.0	15.3	15.7	18.7	17.0
22. Would you say it is true that in your community/area _____? (% yes)														
The police or fire department have trained personnel to respond to chemical emergencies	81.3	88.5	85.7	84.4	80.0	67.4	81.5	83.5	79.0	82.5	80.5	77.0	80.9	85.5
Environmental groups have been active in discussing the risks of toxic chemicals	60.2	50.8	76.0	67.6	63.6	52.1	52.8	61.0	59.5	56.6	62.6	55.2	59.8	65.1
The local government has been actively working on the problem of chemicals in the environment	58.5	52.8	66.1	63.6	62.8	49.7	56.5	59.6	57.5	61.1	56.6	51.5	56.4	67.6
There is an emergency preparedness plan for hazardous materials	54.0	61.3	65.9	58.9	49.3	38.2	51.2	57.5	50.6	53.4	54.4	49.6	55.9	54.7
Local businesses have reduced the amount of toxic chemicals they store, use, or release	46.9	47.2	47.1	39.5	48.1	37.2	59.9	47.4	46.5	50.0	44.7	39.0	44.0	58.3
Local businesses have notified the community about toxic chemicals they store, use, or release	26.8	27.7	32.5	25.1	26.3	16.3	32.0	28.6	25.0	29.1	25.1	26.3	24.6	31.0
25. Would you say that _____ is doing an excellent job, a good job, a fair job, or a poor job at keeping your community safe from the risks of hazardous chemicals?														
Local government														
Excellent	3.5	4.2	4.4	4.2	2.4	2.2	3.6	3.8	3.2	4.8	2.5	2.9	1.9	6.7
Good	28.9	28.9	30.7	28.5	28.1	19.3	36.3	26.5	31.3	32.6	26.2	25.5	26.6	35.5
Fair	49.1	47.8	48.3	47.4	52.9	50.3	48.2	50.0	48.2	45.4	51.7	55.7	49.3	43.5
Poor	17.0	16.6	15.4	19.2	15.2	26.8	10.3	18.5	15.5	15.6	18.1	15.6	20.5	12.4

Question	Total	Community							Gender		Education		Age		
		Rich mond	Dur- ham	Albu- quer- que	Cin- cin- nati	Mid- dle- sex	Ra- cine coun	-ty	Gender		Education		Age		
									Fe- male	Male	HS or less	Coll or more	Less than 30 yrs.	30- 50 yrs.	More than 50 yrs.
Local businesses															
Excellent	2.8	3.4	3.8	3.2	1.6	1.0	4.0		2.5	3.2	4.4	1.8	2.4	1.8	5.0
Good	22.4	22.1	24.0	20.0	20.6	15.9	30.3		21.1	23.7	26.2	19.8	20.9	19.8	28.1
Fair	48.0	48.0	45.7	48.4	52.1	44.7	48.7		46.7	49.3	46.6	48.8	51.0	48.2	44.9
Poor	24.7	23.7	25.0	26.5	24.0	36.2	14.7		27.9	21.4	20.4	27.7	25.3	28.4	18.1
Federal Environmental Protection Agency															
Excellent	5.1	4.5	8.3	6.5	4.2	2.8	4.3		5.3	4.8	6.3	4.3	5.6	3.6	7.3
Good	37.0	38.5	41.0	32.8	40.2	27.2	41.2		34.5	39.4	39.0	35.6	42.5	34.8	36.5
Fair	42.1	40.1	37.2	44.9	44.0	47.7	39.4		42.5	41.7	42.0	42.1	41.2	44.7	38.4
Poor	13.6	13.2	11.9	14.0	9.9	21.1	12.1		16.1	11.1	10.5	15.8	9.9	15.3	13.7
Never heard of/not familiar	1.2	2.2	.8	1.0	.8	.8	1.8		1.0	1.5	1.5	1.1	.7	.6	2.8
State government															
Excellent	3.6	3.8	4.2	4.5	3.0	2.4	3.8		3.6	3.6	5.0	2.7	3.1	2.3	6.3
Good	29.2	32.0	30.5	27.3	23.6	21.7	38.2		28.3	30.1	31.8	27.4	29.4	25.4	35.4
Fair	50.5	49.2	51.1	50.2	55.1	50.9	47.4		50.5	50.5	48.3	52.0	51.9	54.6	42.6
Poor	15.2	12.3	13.5	17.0	16.2	23.7	9.8		16.6	13.8	13.8	16.2	15.0	16.5	13.2
Local emergency planning committee															
Excellent	5.1	5.7	6.5	5.1	5.0	3.2	5.0		5.0	5.2	6.7	3.9	4.6	3.1	8.7
Good	33.7	37.0	34.3	35.6	30.3	23.7	39.9		30.9	36.4	37.3	31.2	33.1	32.6	35.8
Fair	40.5	38.3	41.6	37.4	44.8	41.6	39.7		40.5	40.5	39.5	41.3	43.7	41.8	35.9
Poor	12.2	9.7	11.7	14.4	10.9	19.1	8.1		14.7	9.6	10.4	13.3	12.4	14.2	8.5
Never heard of/not familiar	5.7	6.7	4.2	4.9	6.1	7.4	5.1		6.0	5.4	4.3	6.7	4.2	5.0	8.3
Don't know	2.7	2.4	1.8	2.4	2.8	5.0	2.2		2.6	2.8	1.9	3.3	1.9	3.0	2.7
Local environmental groups															
Excellent	7.7	7.7	11.1	7.5	7.3	4.6	8.1		7.9	7.5	8.1	7.4	7.2	6.7	9.8
Good	42.3	41.7	45.1	44.7	39.2	35.2	47.2		39.0	45.7	43.8	41.3	44.2	42.5	40.6
Fair	39.0	36.6	36.8	37.5	43.4	44.9	35.6		41.0	37.1	37.9	39.9	40.1	39.4	37.7
Poor	7.7	9.5	4.4	8.3	5.7	11.9	6.6		9.7	5.7	7.0	8.1	7.1	8.5	6.6
Never heard of/ not familiar	1.7	2.6	1.6	.8	1.8	1.6	1.8		1.4	2.0	1.8	1.6	.6	1.7	2.7
Don't know	1.4	2.0	1.0	1.2	2.4	1.6	.7		.9	2.0	1.3	1.5	.8	1.1	2.6

Question	Total	Richmond	Durham	Community				Gender		Education		Age		
				Albuquerque	Cincinnati	Mid-dlesex county	Racine county			HS or less	Coll or more	Less than 30 yrs.	30-50 yrs.	More than 50 yrs.
								Male	Female					
26. Have you ever faced a situation involving chemicals in the environment that you considered threatening to you or your immediate family?														
Yes	26.5	24.9	21.4	24.1	27.7	39.0	22.7	29.7	23.3	20.7	30.3	25.9	31.5	18.5
No	73.3	74.7	78.4	75.7	71.9	60.8	77.3	70.1	76.5	78.9	69.6	74.0	68.2	81.3
27. (If yes to Q. 26) Would you briefly describe the situation?														
Personal exposure (net)	52.4	46.0	54.6	39.3	60.7	56.6	53.3	57.8	45.3	53.8	51.8	45.7	53.4	57.2
Work with chemicals/work hazard	25.7	23.8	30.6	21.3	30.0	18.9	32.8	33.6	15.5	29.4	24.0	20.4	27.3	27.1
Exposed to toxic cloud/gases/fumes/odors	21.1	17.5	12.0	11.5	27.9	35.2	13.1	20.1	22.4	17.9	22.4	19.4	20.6	23.5
Hazards in air (net)	31.5	26.2	17.6	21.3	36.4	45.4	31.4	29.3	34.3	28.2	32.9	29.6	30.3	36.7
Chemical accident (net)	30.8	31.7	45.4	36.9	29.3	30.1	15.3	31.7	29.6	25.6	32.7	39.2	29.4	23.5
Hazards in water (net)	22.0	26.2	8.3	21.3	27.1	19.9	27.0	20.3	24.0	20.2	23.0	15.1	25.2	21.1
Situation(s) caused health problems (net)	17.0	13.5	13.0	17.2	20.0	19.4	16.8	14.8	19.9	18.7	16.2	17.2	17.2	16.3
Evacuation of my area	7.5	9.5	19.4	5.7	6.4	4.6	2.9	5.1	10.5	5.0	8.4	14.0	6.1	3.6
Improper/illegal dumping	6.2	7.1	2.8	4.9	4.3	9.7	5.8	7.5	4.4	6.9	5.9	8.6	5.7	4.8
Insecticides are dangerous	3.3	4.0	4.6	6.6	.7	2.0	2.9	2.6	4.1	1.1	4.3	2.2	3.6	3.6
Agricultural chemicals	3.1	2.4	3.7	1.6	.7	0	11.7	2.6	3.9	2.3	3.6	1.6	3.0	5.4
Household chemicals/lye/ammonia/paint/wood preservatives	2.4	1.6	1.9	3.3	2.1	1.0	5.1	3.0	1.7	1.9	2.7	2.2	2.3	3.0
Dangerous businesses/plants/landfill possibly being built nearby	1.7	0	2.8	0	2.9	3.6	0	.6	3.0	1.9	1.6	3.2	1.3	1.2
Open sewage	.8	.8	.9	3.3	.7	0	0	.9	.8	.8	.9	1.6	.8	0
Chemical lawn care	.7	0	.9	1.6	0	.5	1.5	.6	.8	.4	.9	.5	.8	.6
Woodburning/fireplaces	.7	0	0	4.9	0	0	0	.9	.6	.8	.7	0	.8	1.2
Other	4.5	3.2	5.6	6.6	3.6	4.1	4.4	4.3	4.7	4.6	4.4	3.2	4.4	6.0
28. Have you ever _____ because of risks in the environment? (% yes)														
Contributed time or money to an environmental cause	36.9	39.5	36.0	29.1	36.4	41.9	38.4	37.6	36.3	25.2	44.9	28.1	44.2	31.7
Used bottled drinking water	36.4	43.5	23.2	28.5	47.9	59.4	19.4	31.7	41.1	32.6	39.2	38.3	39.9	29.2
Attended a town or community meeting	19.5	14.2	24.2	21.1	15.6	25.2	17.2	21.0	18.0	13.2	23.9	14.8	22.9	17.6
Talked to your doctor	19.5	20.4	18.0	17.8	21.0	20.7	19.4	18.8	20.3	16.5	21.5	19.2	22.6	14.5

Question	Total	Community						Gender		Education		Age		
		Richmond	Durham	Albuquerque	Cincinnati	Mid-dle-coun-ty	Ra-cine	Fe-male	Male	HS or less	Coll or more	Less than 30 yrs.	30-50 yrs.	More than 50 yrs.
29. If there was a large spill or release of hazardous chemicals in your community, how do you think you would be first notified?														
Media (net)	82.3	87.7	84.4	88.5	87.5	71.8	75.3	81.6	83.1	78.2	85.1	86.5	84.7	74.9
Local officials (net)	9.8	5.7	10.5	4.9	5.3	17.9	13.9	10.3	9.3	13.2	7.6	6.5	8.7	14.4
Siren/warning signal	2.4	1.4	1.6	2.4	3.6	1.4	4.0	2.8	2.1	2.6	2.3	1.1	1.9	4.4
Personal contact (net)	1.6	1.4	.8	1.6	1.0	2.4	2.3	1.3	1.9	1.9	1.4	2.6	1.7	.7
Other	2.9	1.8	2.4	2.2	2.2	5.2	3.8	3.1	2.8	3.0	2.8	2.9	2.5	3.6
30. Age														
18 - 24 years	10.6	11.1	10.9	9.3	10.5	12.7	9.4	11.7	9.5	11.7	9.9	46.2		
25 - 29 years	12.3	9.7	13.3	13.6	13.1	14.3	10.4	12.7	12.0	10.4	13.7	53.8		
30 - 35 years	16.6	17.4	16.2	17.4	17.4	16.1	15.4	16.1	17.1	14.1	18.5		34.7	
36 - 40 years	12.4	12.3	13.7	12.6	9.5	12.1	13.7	13.1	11.6	9.3	14.6		25.8	
41 - 45 years	11.2	10.9	12.3	11.1	11.1	10.1	11.8	13.3	9.1	9.4	12.5		23.4	
46 - 50 years	7.7	8.5	8.1	6.7	6.7	6.8	9.1	7.2	8.2	7.8	7.7		16.1	
51 - 55 years	5.6	8.1	4.6	4.9	5.0	6.2	4.8	5.5	5.7	5.9	5.4			19.4
56 - 60 years	5.9	5.7	5.7	6.1	5.7	5.4	6.8	5.6	6.3	7.4	5.0			20.8
61 - 65 years	5.8	5.1	5.9	6.3	5.1	6.8	5.6	5.3	6.4	7.7	4.5			20.3
66 - 70 years	4.8	6.3	3.8	3.6	5.5	4.2	5.5	4.4	5.3	6.4	3.8			16.9
71 - 75 years	3.3	2.2	2.6	3.0	4.6	3.6	4.0	2.6	4.7	5.0	2.2			11.6
76 - 80 years	2.2	1.6	2.2	2.6	3.8	1.0	2.0	1.5	2.8	3.5	1.3			7.6
81 - 85 years	.7	.6	.2	1.0	1.4	.2	.7	.3	1.0	.9	.5			2.3
86 - 90 years	.3	.2	.2	.4	.4	.2	.3	.3	.3	.4	.2			1.0
32. What is the highest level of education you completed?														
8th grade or less	2.6	3.2	3.8	1.2	2.0	2.4	3.1	2.7	2.5	6.5	--	.6	.6	7.7
Less than high school	5.9	6.1	5.9	4.3	9.3	3.8	5.8	5.5	6.3	14.6	--	5.0	3.7	10.3
High school degree	31.9	28.3	23.4	29.2	33.9	31.8	42.7	27.6	36.2	79.0	--	33.4	29.9	34.4
Some college	22.5	22.1	21.8	29.2	23.4	21.1	18.4	22.8	22.3	--	38.0	27.6	22.1	19.2
College degree	19.0	22.3	22.8	16.0	16.8	22.9	14.4	20.7	17.4	--	32.2	21.9	20.8	14.0
Some graduate work	2.5	3.4	3.6	2.6	1.6	2.2	1.8	2.5	2.4	--	4.2	.8	3.4	2.2
Graduate degree	11.4	11.9	15.4	13.6	10.7	11.3	6.5	14.2	8.6	--	19.3	5.8	16.0	8.3
Vocational/technical school	3.7	2.2	3.2	3.4	2.2	4.4	6.6	3.6	3.9	--	6.3	4.7	3.3	3.7

Question	Total	Community						Gender		Education		Age		
		Rich mond	Dur- ham	Albu- quer- que	Cin- cin- nati	Mid- dle- sex coun- ty	Ra- cine coun- ty	Male	Fe- male	HS or less	Coll or more	Less than 30 yrs.	30- 50 yrs.	More than 50 yrs.
33. What is your marital status?														
Single	25.5	27.9	29.1	22.1	26.1	29.8	19.4	26.9	24.1	23.1	27.3	62.0	19.2	7.3
Married	56.7	50.6	53.5	58.1	53.5	56.3	66.4	63.8	49.5	56.1	57.4	35.4	65.4	59.9
Divorced	8.6	11.7	7.5	10.7	8.5	6.6	7.1	5.6	11.7	8.3	8.9	1.7	11.9	8.8
Separated	1.7	2.4	3.4	1.6	1.4	1.4	.2	1.1	2.2	2.0	1.5	.8	2.3	1.3
Widow/widower	7.0	6.7	5.9	6.7	10.3	5.8	6.5	1.8	12.2	10.0	4.9	0	1.0	22.4
34. How many people live in your household, including yourself?														
1	19.5	22.1	20.8	21.1	24.0	16.5	13.4	15.0	23.9	19.2	19.6	14.8	14.1	32.1
2	30.0	33.4	30.9	29.1	27.9	28.0	30.8	32.5	27.5	29.0	30.8	31.6	21.1	44.1
3	21.1	21.7	23.6	20.2	18.2	21.9	21.0	21.2	21.0	22.2	20.5	24.9	22.8	15.3
4	17.8	13.2	17.4	18.8	14.9	20.3	21.5	18.9	16.7	17.3	18.2	15.5	26.6	5.4
5	7.9	6.1	4.8	7.1	10.3	10.3	8.6	8.6	7.1	8.1	7.8	7.8	11.5	2.1
6	2.1	1.6	1.2	2.0	3.2	2.0	2.6	2.1	2.1	2.5	1.8	3.1	2.7	.4
More than 6	1.2	1.0	1.2	.6	1.4	.8	1.8	1.0	1.2	1.4	1.0	2.3	1.1	.3
35. How many children, under 18, live in your household?														
0	59.9	67.6	60.4	54.9	60.0	63.4	54.0	59.9	59.8	60.3	59.7	61.3	40.8	91.0
1	16.9	14.6	18.0	17.0	16.0	18.9	17.1	18.0	15.9	17.2	16.8	20.5	21.5	6.6
2	15.3	11.5	16.2	19.2	13.1	12.7	18.5	14.5	16.1	14.6	15.9	12.3	24.9	2.0
3	5.4	4.3	3.6	5.5	7.1	4.0	7.5	5.3	5.5	5.7	5.2	3.5	9.5	.2
4	1.6	1.0	1.4	1.6	3.0	.8	1.8	1.3	1.9	1.	1.7	1.9	2.4	0
More than 4	.5	.2	.4	.6	.6	0	.8	.4	.4	.7	.4	.5	.6	0
36. Do you own or rent your current place of residence?														
Own	66.1	62.6	61.2	66.2	66.9	66.2	72.2	69.1	63.1	63.9	67.9	42.8	70.8	77.7
Rent	31.8	34.0	37.4	31.4	31.7	31.4	26.0	28.9	34.7	34.2	30.2	52.5	28.1	21.7
Parent's/family home	1.1	2.2	.6	.6	.4	2.0	1.0	1.2	1.0	.9	1.2	4.2	.2	.2
Other	.3	0	.4	.4	.4	.2	.2	.2	.3	.4	.2	.3	.3	.2
37. Is this your year-round residence?														
Yes	98.0	97.8	97.8	98.0	98.8	98.4	97.4	98.0	98.0	98.6	97.9	94.7	99.1	99.6
No	1.7	1.6	2.0	1.4	1.0	1.4	2.5	1.5	1.9	1.3	1.9	5.3	.7	.4

Question	Community							Gender		Education		Age		
	Total	Richmond	Durham	Albuquerque	Cincinnati	Mid-sex county	Racine county	Male	Female	HS or less	Some Coll or more	Less than 30 yrs.	30-50 yrs.	More than 50 yrs.
38. How many years have you (lived in/been coming to) your community?														
Less than 6 months	1.5	1.4	1.6	2.2	1.0	1.6	1.3	1.7	1.4	1.0	1.8	3.2	1.4	.3
6 months to one year	2.5	1.6	4.4	2.8	2.2	2.8	1.7	2.7	2.4	1.0	3.6	4.6	2.7	.6
1 to 5 years	12.9	13.8	17.2	15.6	7.9	15.9	7.9	14.3	11.5	6.7	17.2	18.4	14.5	5.8
6 to 10 years	7.9	7.7	10.3	12.6	3.4	9.1	4.6	7.4	8.4	5.1	9.8	9.3	8.8	5.0
10 to 15 years	8.6	9.3	9.3	12.3	5.1	7.8	8.1	9.3	7.9	7.1	9.7	7.0	11.2	5.7
More than 15 years	66.3	65.6	57.0	54.0	80.2	62.8	76.0	64.2	68.3	78.8	57.9	57.5	61.2	82.6
39. Are you currently employed outside the home? (% Yes)														
Full-time	63.3	67.4	69.3	58.5	56.2	66.6	61.9	75.7	50.7	52.4	71.0	70.8	78.3	32.8
Part-time	9.5	8.7	7.9	8.5	10.9	10.1	10.4	6.5	12.4	10.6	8.7	14.1	8.3	7.9
Not employed outside the home	26.9	23.3	22.6	32.2	32.7	23.3	27.5	17.3	36.7	36.9	20.1	15.2	13.3	59.3
40. (Not employed - Q. 39) Are you _____?														
A homemaker	33.7	33.9	23.7	31.3	37.0	36.8	37.3	2.2	48.8	35.6	31.4	38.5	58.0	23.5
A student	6.0	4.2	10.5	6.1	7.9	5.1	3.0	7.3	5.4	3.0	9.9	31.2	8.0	.2
Retired	42.1	44.9	48.2	41.1	38.2	37.6	44.0	64.1	31.6	40.8	43.7	0	2.0	65.7
Disabled	7.8	7.6	7.9	5.5	7.9	12.8	6.6	11.4	6.1	10.1	4.8	3.7	11.0	7.5
Temporarily laid off	1.7	1.7	.9	1.2	3.0	1.7	1.2	2.9	1.1	2.4	.8	5.5	4.0	0
Not employed/looking for work	5.3	5.1	6.1	8.6	3.6	4.3	4.2	7.7	4.2	5.4	5.4	18.3	10.5	.8
Self-employed	1.9	1.7	1.8	2.5	2.4	1.7	1.2	3.3	1.2	1.1	2.9	.9	4.5	1.1
42. (Yes to Full- or Part-time - Q. 39) What is your exact job profession, or line of work?														
Health care provider (net)	7.6	7.3	12.6	5.3	8.6	5.4	6.4	3.3	13.3	4.0	9.4	7.6	8.4	4.7
Physicians, dentists, and related practitioners (sub-net)	14.5	3.6	8.2	11.1	10.3	19.0	3.6	37.2	6.9	0	18.0	17.4	14.7	5.9
Nurses, dieticians, and therapists (sub-net)	49.7	39.3	53.1	55.6	48.3	47.6	53.6	34.9	54.6	25.0	54.7	34.8	56.9	41.2
Health technologies and technicians (sub-net)	12.1	3.6	18.4	11.1	13.8	14.3	7.1	16.3	10.8	9.4	12.9	19.6	10.1	5.9
Health-related professionals (net)	1.6	1.3	1.5	2.1	1.5	2.1	1.1	.7	2.8	.4	2.2	.7	2.1	1.4
Professional, technical other than health (net)	21.5	17.9	27.7	27.7	18.9	22.8	15.1	23.4	19.0	4.6	30.6	19.4	22.6	21.1
Managers and administrators other than farm (net)	13.9	16.9	9.0	18.9	13.6	10.4	15.1	16.3	10.7	9.4	16.3	9.7	15.1	16.7
Craftsmen and kindred workers (net)	11.7	10.1	10.0	10.3	11.8	11.7	15.6	19.3	1.6	19.1	7.7	13.1	11.6	9.9
Operatives, except transport (net)	5.7	4.4	5.4	2.9	6.5	3.1	11.0	5.8	5.6	11.1	2.8	5.1	5.9	6.0

Question	Total	Community						Gender		Education		Age		
		Rich mond	Dur- ham	Albu- quer- que	Cin- cin- nati	Mid- dle- coun- ty	Ra- cine coun- ty	Gender		Education		Age		
								Fe- male	Male	HS or less	Coll or more	Less than 30 yrs.	30- 50 yrs.	More than 50 yrs.
Transport equipment operatives (net)	2.6	2.6	1.8	2.1	2.9	2.1	4.1	4.4	.3	5.3	1.2	2.5	2.7	2.7
Laborers, except farm (net)	2.2	1.3	1.5	.9	2.1	3.1	3.9	3.2	.8	4.4	1.0	3.0	2.2	1.1
Farmers and farm managers (net)	.2	0	0	.3	.3	0	.7	.3	.1	.3	.2	.5	.1	.3
Private household workers (net)	.3	.8	.5	.3	0	.3	0	0	.7	.6	.1	0	.3	.8
43. Does anyone in your household have a job that requires working with industrial chemicals?														
Yes	16.6	12.5	13.3	15.6	16.2	15.5	24.7	18.3	14.7	16.7	16.5	19.9	20.6	7.3
No	82.8	87.0	86.1	83.2	83.6	83.5	75.2	80.7	85.0	82.7	83.2	79.2	79.0	92.7
44/45. Does anyone in your immediate family work as a health professional?														
Who would that be?														
Yes - health professional in immediate family (Q. 44)	11.9	10.7	16.6	12.6	11.9	10.7	9.4	13.3	10.6	7.5	14.9	12.1	11.8	12.2
Husband (Q. 45)	6.4	7.4	10.7	10.9	5.0	1.9	0	.5	14.0	4.2	7.2	4.6	8.5	4.6
Wife (Q. 45)	27.9	29.6	27.4	28.1	28.3	18.5	35.1	49.3	.6	20.0	30.7	17.2	39.5	17.4
Son/stepson (Q. 45)	5.4	3.7	2.4	7.8	6.7	9.3	3.5	4.8	6.1	6.3	5.1	0	1.1	16.5
Daughter/stepdaughter (Q. 45)	20.4	14.8	17.9	15.6	23.3	25.9	26.3	14.4	28.0	30.5	17.0	0	4.7	57.8
Brother (Q. 45)	6.7	7.4	8.3	1.6	8.3	3.7	10.5	3.8	10.4	2.1	8.3	11.5	7.9	.9
Sister (Q. 45)	21.4	16.7	22.6	20.3	18.3	33.3	17.5	18.2	25.6	30.5	17.4	34.5	23.2	8.3
Father/stepfather (Q. 45)	9.1	18.5	13.1	7.8	5.0	3.7	5.3	8.6	9.8	6.3	9.7	20.7	9.0	0
Mother/stepmother (Q. 45)	11.0	9.3	10.7	12.5	8.3	13.0	12.3	7.7	15.2	9.5	11.6	24.1	10.7	.9
No - no health professional in immediate family (Q. 44)	87.6	88.3	83.0	86.6	87.7	88.9	90.4	86.0	89.2	91.9	84.9	87.5	88.0	87.5
46. (Yes to Q. 44) What type of health professional is your family member?														
Health care provider (net)	89.8	90.7	88.1	95.3	88.3	87.0	89.5	92.8	86.0	93.7	88.4	93.1	89.8	87.2
Nurses, dieticians, and therapists (sub-net)	52.5	44.9	48.6	44.3	54.7	63.8	62.7	55.2	48.9	48.3	54.3	48.1	50.9	58.9
Physicians, dentists, and related practitioners (sub-net)	22.3	31.5	26.2	25.0	16.7	14	18.5	20.1	25.0	16.8	24.2	24.1	22.0	17.2
Health technologies and technicians (sub-net)	11.0	7.4	14.3	17.2	8.3	11.1	5.3	13.4	7.9	14.7	9.7	16.1	9.6	9.2
Health service workers (sub-net)	10.2	9.3	6.0	10.9	10.0	9.3	17.5	11.0	9.1	13.7	8.7	11.5	12.4	5.5
Health-related professionals (net)	7.5	7.4	7.1	3.1	8.3	13.0	7.0	6.2	9.1	2.1	9.4	5.7	7.3	9.2

Question	Total	Community								Education		Age		
		Rich mond	Dur- ham	Albu- quer- que	Cin- cin- nati	Mid- dle- coun- -ty	Ra- cine coun- -ty	Gender Fe- male	Male	HS or less	Coll or more	Less than 30 yrs.	30- 50 yrs.	More than 50 yrs.
47. How often would you say you are asked for advice on chemical risks in the environment?														
Often	4.0	3.2	3.2	4.9	5.0	4.2	3.6	5.3	2.6	2.5	5.0	3.6	4.5	3.5
Sometimes	24.3	24.7	27.9	20.8	23.0	26.2	23.3	26.7	21.9	21.0	26.5	22.7	25.8	23.3
Never	71.2	71.1	68.1	73.5	71.9	69.0	73.0	67.0	75.4	75.8	68.3	73.3	69.4	72.9
48. In the past month, have you experienced _____? (% yes)														
Irritation of the eyes, nose, or throat	36.8	36.2	28.9	35.6	40.0	44.7	35.4	31.3	42.3	32.7	39.6	38.4	39.8	30.2
Headaches	36.1	36.4	33.7	32.4	40.0	43.7	31.3	26.3	46.0	35.3	36.8	42.8	39.9	24.7
Shortness of breath	18.4	15.8	12.5	11.7	20.8	22.3	26.0	14.8	22.1	21.5	16.2	14.6	17.7	22.5
Nausea	12.8	11.9	11.7	10.5	14.7	17.7	10.6	8.2	17.4	13.3	12.3	17.1	12.7	9.3
Skin rashes	11.7	12.1	12.1	10.1	13.5	11.3	11.3	9.1	14.3	10.4	12.5	12.1	13.5	8.5
No to all	39.8	40.3	45.9	42.1	36.8	34.2	39.6	49.0	30.5	42.4	38.0	34.8	36.8	48.4
49. (Has experienced _____ (Q. 48)) Did you consult a doctor about this problem? (% yes)														
Headache	22.5	27.7	24.1	18.9	26.2	20.0	18.0	16.9	25.7	26.5	20.0	18.9	19.9	34.8
Nausea	35.3	35.0	38.9	43.4	36.5	32.6	28.1	28.7	38.5	39.3	32.5	26.8	34.0	51.8
Irritation of eyes, nose, or throat	27.0	31.7	29.5	28.3	30.7	25.8	18.2	22.7	30.3	28.8	26.2	22.5	24.5	37.3
Shortness of breath	39.4	45.0	47.6	47.5	47.6	36.6	26.8	38.2	40.2	46.0	33.9	35.2	28.6	55.9
Skin rashes	42.4	52.5	49.2	43.1	36.8	47.4	27.9	38.9	44.6	47.7	39.0	44.8	33.2	64.5
50. (Has experienced _____ (Q. 48)) Do you think the _____ was caused by chemicals in the air, water, or soil?														
Headache	20.1	16.9	10.0	16.5	25.3	26.4	28.0	21.0	21.0	20.9	20.9	19.5	21.2	22.2
Nausea	28.1	10.0	25.4	18.9	35.1	38.2	32.8	27.1	28.5	32.7	24.6	27.6	26.2	33.7
Irritation of eyes, nose, or throat	50.4	48.6	41.1	30.6	54.5	60.0	60.8	51.5	49.5	49.2	51.0	46.4	53.3	48.3
Shortness of breath	41.2	31.3	25.4	23.7	41.9	48.2	53.5	38.6	42.9	39.3	42.5	44.8	45.1	34.2
Skin rashes	27.6	29.5	13.1	21.6	30.1	38.6	30.9	23.6	30.2	32.6	25.1	27.6	26.7	30.3

Question	Total	Rich mond	Dur- ham	Community				Gender Fe- male	Male	Education		Age		
				Albu- quer- que	Cin- cin- nati	Mid- dle- sex coun- -ty	Ra- cine coun- -ty			HS or less	Some Coll or more	Less than 30 yrs.	More 30- 50 yrs.	More than 50 yrs.
51. Have you or any member of your immediate family had cancer or children with birth defects?														
Yes	26.4	21.5	25.5	25.1	28.3	30.8	26.8	22.0	30.8	27.0	26.1	21.2	25.6	32.3
No	73.0	77.7	73.7	73.7	71.3	68.4	73.2	76.8	69.1	72.3	73.6	78.0	74.1	67.3
52. (Yes to Q. 51) Do you think this was caused by chemicals in the air, water, or soil?														
Yes	24.7	18.3	22.5	19.7	27.3	33.5	24.1	22.8	26.2	24.3	25.1	26.3	30.2	16.6
No	64.1	65.1	68.2	70.9	61.5	53.5	67.3	64.6	63.8	66.3	62.5	65.8	59.1	69.9
Don't know	11.0	16.5	9.3	9.4	10.5	12.9	8.6	12.4	10.0	9.4	12.2	7.9	10.7	13.1
53. Which of the following best describes your total annual household income, before taxes?														
Less than \$20,000	22.0	23.9	22.4	24.7	28.5	11.7	21.0	14.9	29.3	34.7	13.4	23.0	14.5	34.0
\$20,000 up to \$35,000	31.1	29.1	28.9	33.2	30.5	28.4	35.6	30.4	31.8	32.4	30.3	38.9	29.4	28.2
\$35,000 up to \$50,000	22.3	21.1	22.2	20.4	20.0	26.8	23.2	25.8	18.8	17.7	25.6	20.9	27.5	15.1
\$50,000 or over	18.8	20.0	21.4	15.8	15.8	25.8	14.9	23.7	13.9	8.5	26.0	13.2	24.3	14.5
Refused	4.7	4.5	4.6	4.9	3.6	5.6	5.0	4.5	4.9	4.9	4.1	2.4	3.9	6.7
54. Gender of respondent														
Male	50.3	48.8	49.5	53.4	49.5	49.7	51.0	--	--	44.6	54.2	53.6	52.3	44.6
Female	49.7	51.2	50.5	46.6	50.5	50.3	49.0	--	--	55.4	45.8	46.4	47.7	55.4