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Industry Response to SARA Title III: Pollution Prevention, Risk Reduction and Risk Communication

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Preface

The Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA, also known as SARA Title III) establishes requirements for industry regarding emergency planning and community right-to-know reporting on hazardous and toxic chemicals. As a result of Title III, communities now have access to information about the amounts, location and potential effects of hazardous chemicals being used or stored; information on the quantities of routine releases of hazardous materials to the environment; and information about accidental releases of hazardous materials to the environment.

The legislative intent of Title III was that it would serve to inform and educate the public about chemicals and risks. It has been speculated that an increase in public awareness and concern might also prompt corporations to change their facility practices regarding the use and control of toxic and hazardous substances. At the time of passage, it was hoped that Title III might significantly affect the responses taken by industries both to communicate information to the public about chemicals and risks, and to reduce the potential for routine emissions and accidental releases.

Under a Cooperative Agreement with the U.S. Environmental Protection Agency, the Columbia University Center for Risk Communication conducted a survey of risk reduction, pollution prevention and risk communication initiatives in three industries: pulp and paper, chemical, and petroleum and refining. The purpose of the study was to evaluate the extent of industrial activities since passage of the Emergency Planning and Community Right-to-Know Act of 1986 (SARA Title III), to examine the rationale for actions taken, and to identify those factors that may contribute to a company or facility engaging in risk communication, risk reduction or pollution prevention activities.

The specific objectives of the survey were to:

- Evaluate industry waste minimization and pollution prevention practices and public outreach/risk communication activities since 1987;
- Examine factors leading to individual facilities taking actions and to identify potential barriers to action;
- Examine SARA Title III requirements as a motivating factor; and
- Examine the relationship between risk communication activities and pollution prevention/waste minimization activities.

Two focus groups were held with industry groups as part of the questionnaire-development phase of this study. In addition, this study is part of a larger project that also endeavored to look at the impact of community right-to-know from the point of view of the public. Review of national surveys of the general public as well as baseline and follow-up surveys in 1988 and 1992 of six communities throughout the United States probed public awareness and opinions to assess changes, if any, since the implementation of these laws. This report focuses specifically on the industry survey, with reference to the public surveys where appropriate.

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Summary and Implications

Under a Cooperative Agreement with the U.S. Environmental Protection Agency, during November and December of 1992, the Columbia University Center for Risk Communication conducted a mail survey of environmental and facility managers in three industries: pulp and paper, chemical, and petroleum and refining.[1] The purpose of the survey was to evaluate the impact of the *Emergency Planning and Community Right-to-Know Act of 1986* (Title III of the Superfund Amendments and Reauthorization Act of 1986, also known as SARA Title III) on industry waste minimization and pollution prevention practices, as well as on industry public outreach and risk communication activities.

The evidence from this survey is that SARA Title III has been accompanied by a wide variety of waste and pollution reduction activities in all three of the industries surveyed. Whether the volume of reductions reported represents an actual decrease in pollution is not clear and no independent verification of reported reductions was attempted. Yet virtually all those surveyed said they have reduced pollutants or wastes on at least one of ten measures in the survey (such as reducing TRI releases per unit of production, for example), and 84% acknowledged paying more attention to hazardous wastes and toxic substances as a result of Title III.

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[1] The survey was completed by mail according to the procedures outlined in D. A. Dillman's *Mail and Telephone Surveys —The Total Design Method*, New York: Wiley, 1978. Questionnaires were mailed to environmental and facility managers at 600 industrial facilities. The sample was drawn by SIC codes, as follows: 25% from pulp and paper (SIC 26), 50% from chemical (SIC 28) and 25% from refinery and petroleum (SIC 29). The details of the sampling procedures are explained in the Chapter 1 (Methodology) of this report. After two followup mailings, 229 completed surveys had been returned, including 54 from pulp and paper facilities, 126 from chemical facilities, 41 from refinery and petroleum facilities and 8 unknown. All statistics are unweighted, as explained in Chapter 1.

Half of those surveyed reported that their communication activities have increased over the past five years as a result of SARA Title III. The facilities that reported increased community outreach and communication tended to be the larger facilities that say they have public affairs staffs, communication programs and employee communication training. They are also more likely than others to have received encouragement for their public communication efforts from their trade associations, particularly in the form of assistance with communication training for their employees.

In addition, those at facilities that have increased their community communications were more likely than others to say that their facilities have visible pollution, have experienced increased requests for information as well as publicized environmental problems within the past five years, and that their facilities have responded to SARA Title III by increasing their communication efforts and by increasing their focus on worker safety. Finally, those who have more extensive communication tend to be the same respondents who reported the largest number of activities to reduce or prevent pollution.

These findings suggest that public access to information may be a contributing factor in decisions to further company emission reduction and pollution prevention activities, despite industry claims to the contrary. However, in the absence of crisis, most of these facility representatives do not even profess to provide information to the public unless specifically asked to do so. Moreover, most of those surveyed see the public as being largely apathetic about SARA Title III information, and public opinion surveys support this view.

Not surprisingly, the passive availability of information has not increased public awareness and interest, and thus may be limited as a potential stimulus for encouraging industry to reduce pollution. There are no guarantees, of course, that any type of information campaign will engage the public. However, if EPA wants to maximize success in this endeavor, then some more active means of getting this information to the public is recommended – one that takes into consideration the priorities and interests of a broad cross-section of public opinion. Chapter 5 of this report expands on the implications of this research for EPA's future activities in this area.

Industry Survey Findings At A Glance

Pollution Reduction

1. More than eight in ten (84%) of those surveyed said their facilities pay more attention to hazardous and toxic substances as a result of SARA Title III.

2. Nearly all (94%) said their facilities have either reduced or eliminated hazardous wastes, TRI releases, or stored chemicals; 16% said they have done all these things.

3. Safeguarding employee health and meeting federal and state regulations top the list of reasons for reducing hazardous wastes and TRI releases. Community relations was far down the list of reported motivations.

4. Though 84% acknowledged paying more attention to hazardous materials as a result of Title III, just 65% said Title III was effective, including only 17% who said it was very effective.

5. On the other hand, 91% said the law increased production costs (50% agreeing strongly) and 81% said it causes needless public concern.

Communication

1. Half of those surveyed said their facilities have increased their communication activities as a result of SARA Title III.

2. Increases in communications were most prevalent among large facilities with a public affairs staff, high-profile environmental problems, and many pollution reduction initiatives.

3. One in three (36%) said their facilities have a program for communicating information about facility operations and environmental issues to the public.

4. One in five (19%) said they have a public affairs staff to communicate with the public. The remainder rely on their plant manager, corporate communications, facility environmental officials or other technical staff.

5. One in three (34%) said their facilities provide communication training to their facility employees who have to communicate with the public.

Sample Characteristics and Conditions

1. Of 600 surveys mailed, 229 were returned, for a 38% response rate and a completed sample of 58% chemical industry, 24% pulp and paper and 18% refinery and petroleum.

2. The type of industry was not a major predictive factor for either pollution reduction or communication activities. Size of facility was important, as was having visible aspects of production such as smoke plumes (61% reported some type of visible pollution) and having experienced high-profile environmental problems (reported by 42%).

Summary of Key Findings

Impact of SARA Title III

(1) More than eight in ten (84%) of those surveyed said their facilities pay more attention to hazardous and toxic substances, and half (50%) said they have increased their communication activities, as a result of SARA Title III and state community right-to-know laws. Respondents were given a list of suggested impacts of these laws, and Figure 1 shows the responses.

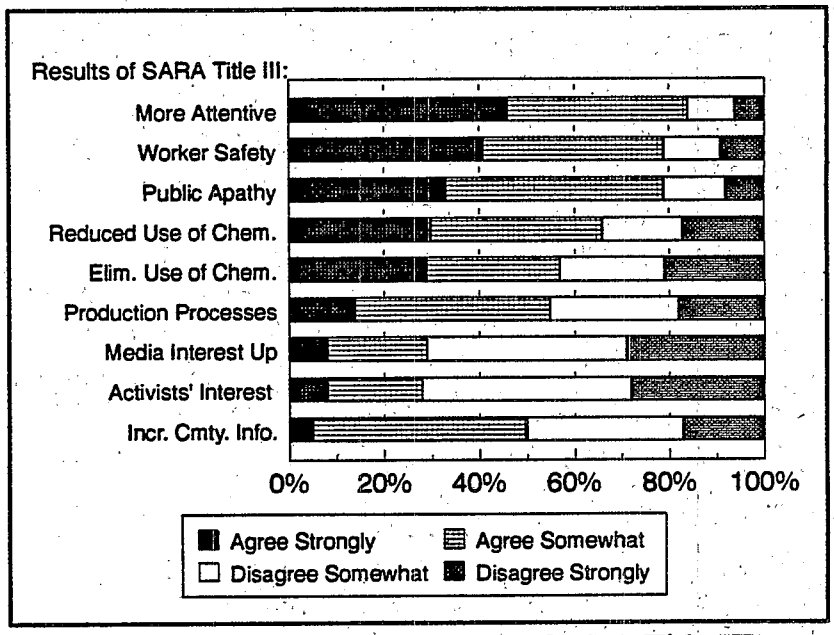

Figure 1: Industry Response to SARA Title III

(2) In spite of the acknowledgement that their own facilities have changed their environmental practices in response to environmental laws, respondents did not consider the laws to be very effective overall. They were more likely to agree that these laws have increased industry's production costs and caused needless public concern than to agree that they have reduced community risks or made the public feel safer.

(3) Most (79%) believe the public has been generally apathetic about the information generated by SARA Title III. Only 17% said that the number of requests they have received for information from public sources has increased during the past five years.

(4) Protecting employee health and meeting state and federal regulations are at the top of the list (far outranking community relations), when respondents rate the importance of various factors in decisions about waste and toxic release reduction.

Hazardous Waste Reduction

(5) Nearly all (94%) of those surveyed say their facilities have taken at least one of the following actions over the past five years:

- 75% have reduced hazardous wastes per unit of production;
- 67% have reduced TRI releases[2] per unit of production;
- 56% have reduced the quantity of stored chemicals;
- 53% have eliminated one or more waste products; and
- 40% have completely eliminated at least one TRI substance.

(6) A "pollution reduction index" was created using the five items above (see Chapter 1 for complete description). Ninety-four percent of all respondents said their facilities had taken at least one of these measures, 82% said two, 58% three, 34% four and 16% said their facilities had taken all five of these actions.

(7) The most compelling reasons cited by survey respondents for reducing hazardous wastes and TRI releases are to protect the health of facility employees and to meet state or federal regulations. These same factors, plus complying with company policy to reduce pollution, and reducing liability, top the list

[2] Section 313 of SARA Title III requires industries that manufacture, process or use 300 listed chemicals and twenty categories of chemicals to file annual reports, which are made public. In January of 1994, EPA proposed adding 308 chemicals and five chemical categories to the list, with the intention of finalizing the rule before the end of 1994. "Current Developments," *Environment Reporter*, Vol. 24, No. 37, January 14, 1994, p. 1619, Bureau of National Affairs, Inc., Washington, D.C., 1994.

of reasons for completely eliminating some wastes. Improving community relations was significantly lower on the list of reasons, though certainly not rated as unimportant.

(8) What problems prevent industrial facilities from eliminating hazardous materials from their production processes? Two factors lead all others as "very important" — the lack of availability of substitutes (which 70% said is "very important") and fears that product quality will be adversely affected (50% "very important").

Community Communications

(9) Though virtually all respondents said their facilities had taken at least one action to reduce or prevent pollution, only about half (47%) said their facility's efforts to communicate with the community have increased over the past five years. Even fewer said they had a community information program, or that they provide communication training to employees, or engage in specified means of communication:

- 47% have increased community communication efforts;
- 36% have a program of public communication;
- 34% provide employee communication training;
- 32-36% meet with community leaders or hold open houses; and
- 7-8% have conducted focus groups or opinion surveys.

(10) Most respondents (78%) acknowledged that a favorable cost-benefit ratio is at least somewhat important as a reason to have an active community relations program. Yet most (73%) also said that public or media interest in their facilities has not increased, and this undoubtedly affects the cost-benefit ratio for those facilities. Community outreach and communication activities were most frequently reported among the larger facilities, as well as the six in ten that reported visible aspects of production (such as smoke plumes) and the four in ten that have experienced high-profile environmental problems with media attention.

Other Factors

(11) **Visibility in the Community.** Six in ten respondents (62%) reported residential, business, school, hospital or recreational facilities within 500 feet of their facility, and a similar proportion (61%) also reported visible aspects of production (such as odors, smokestack plumes, etc.) that call attention to their facilities. Communication activities were more frequently reported for these facilities.

(12) **Environmental Problems.** Six in ten (61%) reported having had problems related to their environmental practices in the past five years, and four in ten (42%) said their environmental problems have received media attention. For example:

- 47% have been subject to an enforcement action;
- 24% experienced a reportable hazardous waste spill;
- 23% experienced difficulty obtaining permits; and
- 20% had a reportable air toxics release.

Those with increased media attention to environmental problems were more likely than others to report community outreach activities.

Subgroup Differences

(13) **Size of Facility.** The characteristic that differentiated responses throughout the survey more than any other was the size of the facility, as measured by the number of employees. Those responding from facilities with more than 200 employees (30% of the total sample) more often reported both reducing pollution and participating in a variety of community outreach and communication activities than those in smaller facilities.

(14) **Public Affairs Staff.** Community outreach and communication activities were more frequently reported among those in facilities with a public affairs staff than in those without such a staff. Only one in five (19%) reported that their facilities had a local public affairs staff. For most facilities, the public affairs and communication responsibility is handled by the plant manager, facility technical staff or corporate headquarters.

(15) **Industry.** The survey was designed to evaluate practices among three industry categories. There were very few major differences in either reported pollution reduction activities or in reported communication activities based on the type of industry represented. On most questions, the responses from the three industries were virtually identical.

It certainly is plausible to postulate that concerns about meeting regulatory requirements are so widespread across industries that any differences are too subtle to be captured by an instrument of this nature. The lack of differences could also be due in part to the small sample size and response rate, if those factors resulted in a bias toward industries who are more active.

However, results from a recent survey of 850 hazardous waste generators in Wisconsin which achieved an 80% response rate (based on an original sample of 1,100) tend to confirm that there are not important cross-industry differences.[3]

[3] Wisconsin Department of Natural Resources, Bureau of Research, *Reducing Hazardous Waste in Wisconsin,* Report V (PUBL-MB-007 (92), August 1992).

Methodology

During November and December of 1992, under a Cooperative Agreement with the U.S. Environmental Protection Agency, Columbia University's Center for Risk Communication conducted a survey of environmental and public affairs managers and staff in three industries: pulp and paper, chemical, and petroleum and refining.[4] The purpose of the survey was to evaluate the impact of the Emergency Planning and Community Right-to-Know Act of 1986 (SARA Title III) on industry waste minimization and pollution prevention practices, as well as industry public outreach/risk communication activities. The specific objectives were to:

- Evaluate industry waste minimization and pollution prevention practices and public outreach/risk communication activities since 1987;
- Examine factors leading to individual facilities taking actions along these lines and identify potential barriers to action;
- Examine SARA Title III requirements as a motivating factor for pollution reduction/waste minimization and public outreach; and
- Examine the relationship between risk communication activities and pollution prevention/waste minimization activities.

This study is part of a larger project that also endeavored to look at the impact of community right-to-know from the point of view of the public. Review of national surveys of the general public as

[4] The sample was drawn by SIC codes, as follows: pulp and paper (SIC 26), chemical (SIC 28) and refinery and petroleum (SIC 29). The survey was completed by mail according to the procedures outlined in Dillman's *Mail and Telephone Surveys —The Total Design Method.*

well as baseline and follow-up surveys in 1988 and 1992 of six communities throughout the United States probed public awareness and opinions to assess changes, if any, since the implementation of these laws. This report focuses specifically on the industry survey, with reference to the public surveys where appropriate.

Survey Sample

The population selected for the survey was a subset of Toxic Release Inventory (TRI) reporters. In order to evaluate potential differences, three SIC codes were selected: Pulp and Paper (SIC 26), Chemical (SIC 28) and Refinery and Petroleum (SIC 29). Selection of these industry groupings was made on the basis of a review of case studies and other qualitative information which suggested that these industry groupings would have the greatest response to Title III. Sample size was based on the total population of TRI reporters in these codes.

Survey questionnaires were mailed to a nationwide sample of 600 facility representatives, including 150 from the pulp and paper industry, 300 from the chemical industry and 150 from the refinery and petroleum industry. Of the 600 survey questionnaires mailed, 229 were returned, for an overall response rate of 38%. This size sample yields 95% confidence intervals of ±6.5% for the total sample of industrial facilities.

The response rate was higher for chemical industry facilities (42%) than for pulp and paper (36%) or refinery and petroleum industry facilities (27%). The final sample of returned interviews is proportionately quite similar to the mailed sample, as Figure 2 illustrates. The original sample of 600 facilities constituted 50% chemical industry, 25% pulp and paper and 25% refinery and petroleum. The final sample of respondents was made up of 126 chemical industry representatives (58%), 54 pulp and paper industry representatives (24%) and 41 refinery and petroleum industry respondents (18%). For reasons of confidentiality, industry code was not entered on the questionnaires, and eight returns could not be coded for industry.

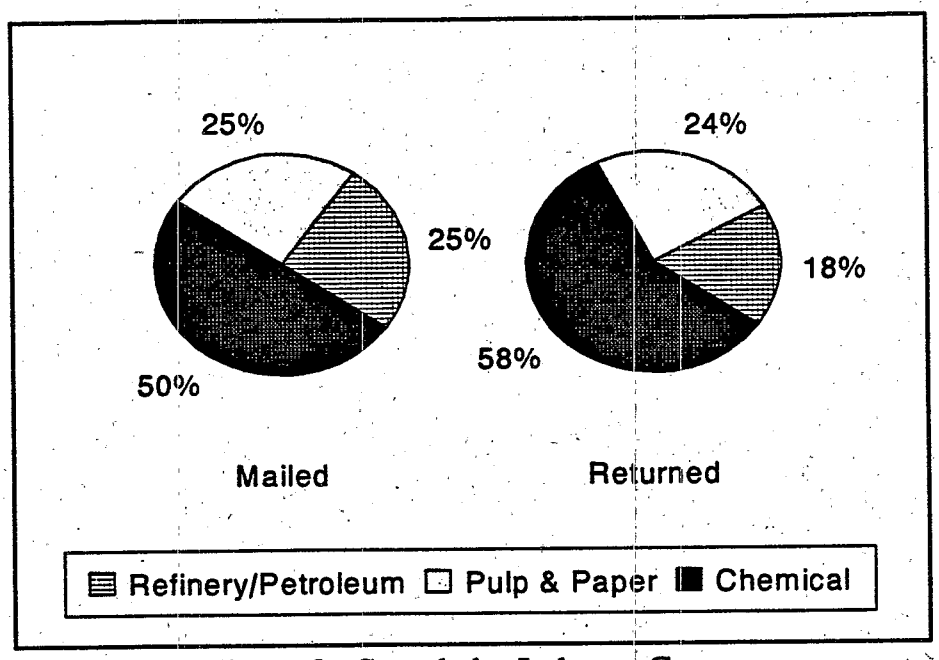

Figure 2: Sample by Industry Group

Although the sample was randomly selected, there are a number of sources of potential respondent bias. While some sources of bias could have influenced the results in either direction, most of the incentives for responding would tend to result in overestimation of the level of both pollution prevention and communication activities. For example, personnel at more environmentally responsive facilities may have been more likely to respond to the survey. Those facilities that had more positive activities to report may have had more incentive to respond than did others.[5] Personnel who held the most negative attitudes about laws and regulations may have wanted to get their opinions on the record. In addition, smaller companies may have had less time and expertise than others to complete the survey. On the other hand, some facilities may not have responded as a matter of policy, and this factor could have affected the results in either direction. The survey was directed to the facility and not the

[5] The results of the Wisconsin survey of hazardous waste generators, with its 80% response rate, would tend to support this possibility; just 55% of firms in Wisconsin reported having reduced hazardous wastes per unit of production, compared to 75% in this national survey; *Op. Cit.*, Wisconsin Department of Natural Resources, 1991 and 1992.

corporate headquarters, and in some cases, it is corporate policy that only corporate offices respond to surveys.

Characteristics of the facilities which may have affected sample bias include: 52% said their business had improved in the past five years, 62% said they had homes, businesses or recreational facilities within 500 feet of their facilities, 61% said their facilities have visible aspects of production, and 61% said they have experienced some notice of violation or other similar environmental problem. These factors could indicate some bias toward the more active facilities and those with higher-profile environmental difficulties responding. On the other hand, only 27% of those responding said public or media interest in their facilities has increased in recent years, and just 42% said they have experienced environmental problems that have drawn media or public interest.

Survey Instrument

The survey instrument (reproduced in Appendix C) was developed and implemented following the procedures outlined in Dillman's *Mail and Telephone Surveys —The Total Design Method.* A direct mail survey was chosen primarily on the basis of cost and the type of information sought. The original research proposal considered a second phase of case study interviews or focus groups with plant and environmental staff to provide additional information that would complement the survey and analysis. However, this second phase was not a part of the final cooperative agreement.

In order to develop an effective survey instrument, input was sought from a variety of sources, including EPA staff, outside experts, (particularly the staff of the Wisconsin Department of Natural Resources), and members of the chemical industry. Many of the survey questions in Sections I and II were adapted from the 1991 Wisconsin survey of hazardous waste generators. The Chemical Manufacturers Association was helpful in reviewing the instrument and identifying methods to enhance response rates.

The primary problem in developing the survey instrument was to limit the breadth of questions and to respond to various reviewers' objectives while maintaining the project focus and intent. During the design of the survey instrument, two focus groups were held with industry groups. The wording of the instrument was modified substantially after the first focus group session to avoid a negative response bias and allow respondents to report industry initiatives other than those required by regulations. In addition, the references to various environmental laws and programs, as well as toxic wastes and TRI releases, were clarified to make the questionnaire easier to answer.

Pretest

Fifty surveys were sent to randomly selected Toxic Release Inventory reporters using the 1990 inventory for the six communities where the baseline and follow-up public opinion surveys had been conducted. All fifty facilities were called prior to the mailing to get the name of the plant or environmental manager.

Personalized advance letters were sent directly to the facility plant or environmental manager from the Center for Risk Communication. (There was no single listing of the names of facility or environmental managers. For the pretest, all fifty facilities were called.) This letter referenced the input received from the Chemical Manufacturers Association (CMA) in designing the survey and discussed potential benefits the information would provide for industry. The letter also noted the interest in having the survey completed at the facility, explaining that the intent was not to obtain parent company or corporate responses. Finally, the letter requested that just one person respond at the facility. Approximately one week after the advance letters had been mailed, survey questionnaires and cover letters with self-addressed (but not stamped) return envelopes were mailed. The focus group had indicated that stamped envelopes would not be a major incentive and it was decided that postage money could be spent more effectively.

Approximately two weeks later, reminder postcards were sent to all facilities not responding. At this stage it was determined that some facilities had not received the survey. Therefore, a decision was made to modify procedures for the full survey, so that the first survey reminder postcard would be sent to all participants one week after the survey was mailed. The pretest resulted in a 32% response rate.

Survey Implementation

Using the 1990 EPA list of TRI reporters, a nationwide sample for the survey was drawn from these SIC codes: 26 (pulp and paper), 28 (chemical), 29 (refining and petroleum). Three hundred facilities were drawn from the chemical industry and 150 each from pulp and paper and refining and petroleum. The EPA provided the nationwide stratified random sample of TRI reporters.

In November of 1992, advance letters were sent to sample industrial environmental plant managers. Names or titles were taken from the TRI database. The advance letter was followed one week later by the survey mailed with self-addressed, stamped return envelopes (stamped envelopes were used to improve returns). One week later, reminder postcards were sent to all facilities.

A second mailing was done on December 13, 1992 with a revised cover letter and a self-addressed, stamped return envelope to all facilities which had not responded as of December 10, 1992. Out of a total sample of 600, 229 questionnaires were returned. The revised procedures based on the pretest mailing raised the response rate from 32% to 38%.

This response rate is average considering the conditions (cited below) of this survey. Response rates to direct mail surveys vary from 5% for completely untargeted solicitation "surveys" to over 80% for highly targeted surveys where the incentive for a response is clear and unambiguous. In mail surveys of chemical plant employees (combining both salaried and hourly) response rates typically range from 35-50% under conditions where management has announced

the survey, provided home addresses and asked employees to respond, but responses are completely confidential.

In this survey, the endorsement of the CMA, reference to the project's being funded by the EPA, the fact that the surveys were targeted to upper level employees, and the fact that reminder letters were sent, should have been positive factors in increasing the response rate. On the other hand, the lack of any corporate endorsement, or targeting of individuals by name, as well as the lack of any specific clear-cut incentives to respond, probably depressed the response rate for this survey. Moreover, it is possible that some facilities were reluctant to respond because they did not believe they had much to report in the way of waste reduction, or did not agree with the goals of the laws. Finally, many may simply have seen it as a low priority given their current responsibilities.

The Wisconsin survey of hazardous waste generators conducted by David, et. al. had a higher response rate: 80% of the 1,100 generators surveyed responded to the 34-page questionnaire. The sponsors of the survey attributed the high response rate in large part to its sponsorship. The Wisconsin survey was sponsored by the environmental protection agency of the state of Wisconsin, the Department of Natural Resources. Previous research in Wisconsin indicates that when identical questionnaires are sent to households, half sponsored by the state and the other half ostensibly sponsored by the University of Wisconsin, the University response rate is about ten percentage points lower.[6]

[6] Op. Cit., Wisconsin Department of Natural Resources.

Analysis

The tables in Appendix B present the data crosstabulated by key factors which the authors hypothesized might result in differences in pollution prevention and communication activities. The subgroups, and their proportions of the total survey sample, are as follows:

- Industry group:
  chemical (58%), pulp & paper (24%), refinery/petroleum (18%);
- Number of employees:
  under 50 (38%), 50-200 (32%), over 200 (30%);
- Overall business has:
  increased (52%), decreased (24%) or remained the same (24%);
- Proximity to homes, businesses or recreation areas:
  62% within 500 feet of one of the above;
- Visible aspects of production such as smoke plumes:
  61% have some such visible pollution;
- High-profile environmental problems with media attention:
  42% have experienced such problems;
- Increase in public/media interest in past 5 years (27% increased):
- Having a public affairs staff at facility (19% have staff); and
- Increase in facility's communication efforts (47% increased).

Judgements about the statistical significance of subgroup differences are based on a Pearson Chi-square test. Differences discussed in the text are statistically significant with less than a .05 probability that the differences are due to chance, unless otherwise noted.

The statistics in the tables were not weighted to equalize SIC codes. The original sample was distributed according to SIC codes in such a way as to be representative of TRI reporters, and in spite of the different response rates, the final sample of respondents (58% chemical, 24% pulp and paper and 18% refinery and petroleum) is distributed fairly similarly to the original sample to which the survey was mailed (50:25:25). Therefore, the unweighted sample should be representative of the population of TRI reporters as well. Moreover, the responses are always reported by industry, and the differences in substantive responses by industry were relatively small.

Pollution Reduction Index. In order to test further the possibility that communication factors may be affecting decisions on pollution reduction (and vice versa), an index of pollution reduction was created, and that index was then measured against the communication activities of each respondent (Table 118). The "pollution reduction index" was created by counting the number of positive responses (indicating pollution has been reduced) of each respondent on the following five factors:

- reductions in hazardous wastes per unit of production,
- reductions in TRI releases per unit of production,
- elimination of any hazardous wastes,
- elimination of any TRI substances and
- reduction in stored chemicals.

Thus, someone who responded positively on none of these items would receive a score of 0, while someone who responded positively on all five would receive a score of 5. More than nine out of ten respondents (94%) responded positively to at least one of these items, and 82% claimed their facilities had reduced pollution by at least two of these measures.

1. Factors Affecting Pollution Prevention and Communication

The Environmental Protection Agency is grappling with the question of what role voluntary initiatives should play in efforts to achieve its pollution prevention goals. These goals include both encouraging more pollution prevention and shifting from enforcement and compliance or traditional "command and control" regulatory approaches to pollution prevention and other more innovative and non-regulatory approaches.

Traditional regulatory programs rely on enforcement and compliance as incentives for pollution prevention. Voluntary programs, on the other hand, must provide other more positive incentives. The impetus behind SARA Title III is the concept that public awareness and access to information might encourage pollution prevention. Such voluntary approaches have to take into consideration what the public expects (in terms of industry pollution control and reduction efforts) and how risk is perceived versus the company's overall self interests. Those self interests may include favorable publicity and improved public relations, as well as cost savings from process changes and reduced waste disposal costs.

The results of this survey can be helpful in understanding how effective public information is: (1) as a regulatory strategy, (2) as a means of encouraging voluntary pollution prevention activities, and (3) as a means of providing to the public the kind of information it needs in order to participate in the discussion of environmental health issues. This survey was designed to obtain information from facility representatives, not only about their reported pollution prevention and waste minimization activities, but also about their reported reasons for taking these actions. Information about

incentives and motivations for action can be used in crafting methods of improving those incentives without regard for the issue of whether or not facility representatives are overstating or understating their pollution prevention activities. (The project did not involve any attempt at independent verification that these activities took place. EPA is exploring the verification of overall changes in TRI reporting under several different initiatives).

Before looking into how and why industrial facilities have responded to Title III, this chapter will examine some of the contextual factors that potentially influence decisions to reduce emissions or engage in community outreach activities. Specifically, this chapter will examine how, if at all, the circumstances of the local plant provide either opportunities or obstacles when it comes to responding to outside events. Factors such as past environmental problems, the public profile of a facility, its communication capabilities and its business circumstances are evaluated as factors that may have an effect on both pollution prevention and communication activities.

Environmental Conditions

Respondents were presented with a list of specific types of environmental problems that their facilities may have experienced during the past few years. Six out of ten (61%) said their facility had experienced at least one of these problems, and 42% said they had experienced environmental problems which received media attention.

Figure 3 shows the distribution of these responses. Nearly half (47%) said their facilities have been subject to an enforcement action or "notice of violation" in the last five years, while at least one in five have experienced a reportable hazardous waste spill (24%), had difficulty in obtaining environmental permits (23%) or had a

reportable air toxics release (20%). (See Table 108; for exact question wording, see Q. X: 4 in Appendix C).[7]

Thirteen percent reported having had to implement RCRA (Resource Conservation and Recovery Act) corrective action and 13% reported having had difficulty finding permitted treatment, storage and disposal facilities to which to take hazardous wastes. Eight of the facilities surveyed (3%) have been designated as EPA or state Superfund sites.

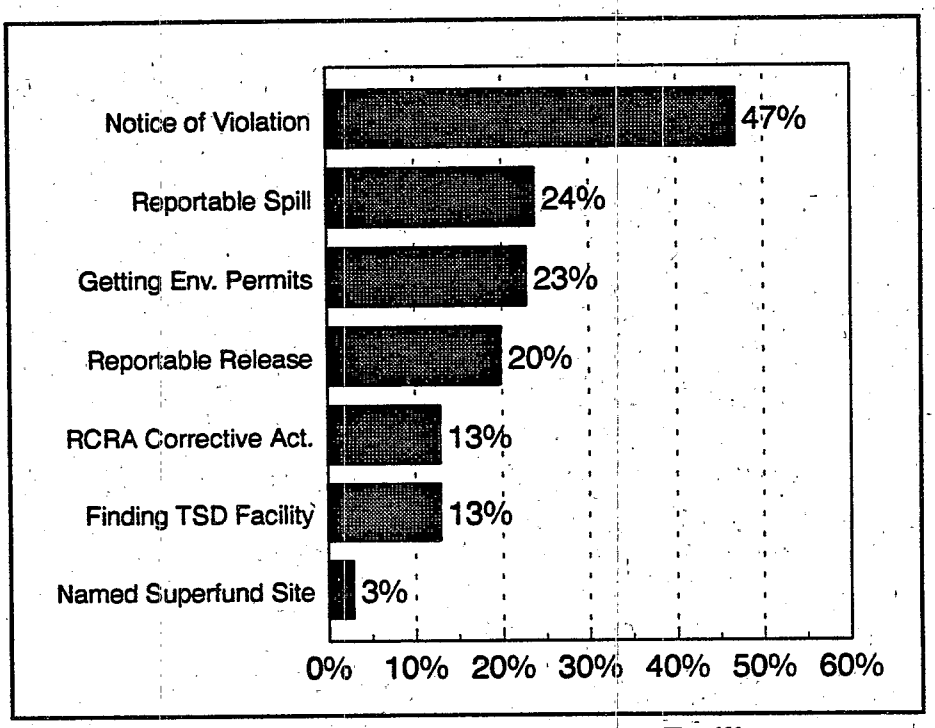

Figure 3: Environmental Issues at Facility

Visible Cues

The extent to which operations are visible to nearby residents has the potential to impose limitations on an industrial facility's activities, as well as impose some requirements on the way business is conducted. The survey attempted to discern to what extent these

[7] Throughout this report, survey questions will be identified by the survey section and question within that section (such as Q. X: 4 as used above).

visible cues affect a facility's community outreach efforts as well as its pollution reduction or prevention activities. Visible cues are postulated as a factor which correlates with public scrutiny and potential concern.

For example, how close is the facility to residences, businesses, and other non-industrial activity, and to what extent are smoke, steam, flares, odors and other sensory cues present to the nearby community? Six in ten (62%) said that some residential, business, school, hospital or recreational activity was located within 500 feet of their facility, as follows (See Table 116, Q. IX: 1.):

- 40% reported homes or apartments within 500 feet;
- 29% reported office buildings;
- 19% reported wildlife, wetlands or nature preserves;
- 14% reported parks or outdoor recreational facilities;
- 5% reported schools or day care facilities; and
- 1% hospitals or nursing homes within 500 feet.

Six in ten (61%) also reported visible aspects of production that call attention to their facilities. As Figure 4 indicates, 40% reported that there are odors coming from their plants, while 30% report visible plumes from their smokestacks, 13% visible water discharges into nearby streams or rivers and 11% visible flares burning. One in four (26%) also reported ten or more trucks per day driving through nearby neighborhoods on the way to and from their facilities. (See Table 117, Q. IX: 2.)

Later sections of this report discuss survey results which appear to indicate that these "sensory" cues have a definite effect on reported community outreach and communication activities, as well as a more limited effect on pollution reduction activities. The results of this analysis show that a wide variety of communication activities were more frequently reported among the facilities that have visible aspects of production and those that have experienced high-profile environmental problems than in those that do not have these characteristics.

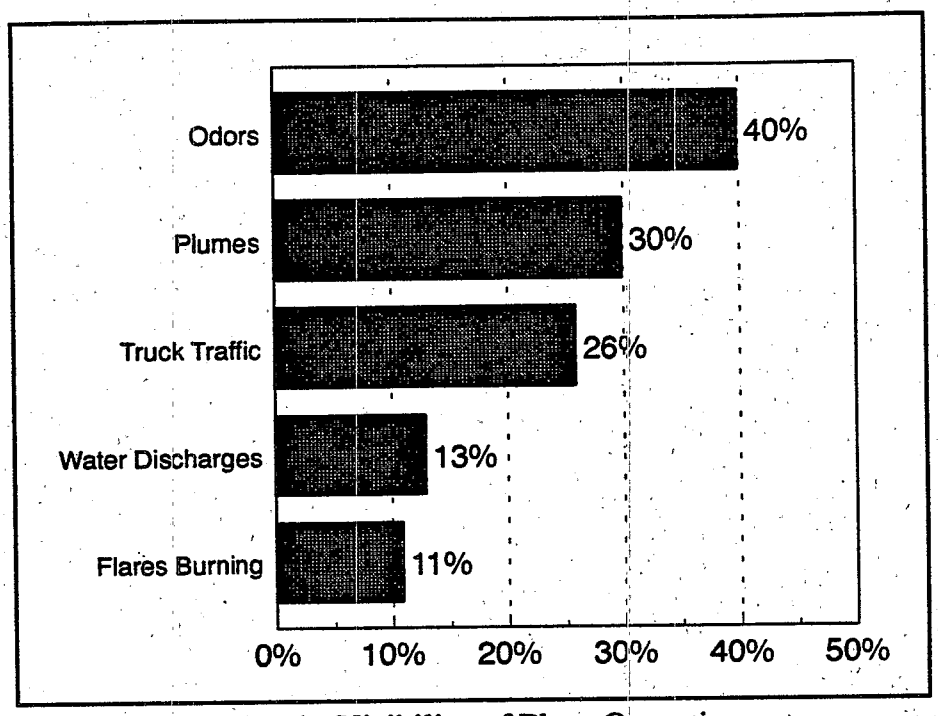

Figure 4: Visibility of Plant Operations

Waste Minimization Policies and Activities

Company Policy. The survey questionnaire identified a number of potential motivational factors for reducing hazardous wastes and TRI releases, including company policy, and asked respondents to evaluate them. Company policy is considered an important factor in these decisions for a significant portion of those surveyed. Three-quarters (73%) of the firms indicated that their facilities have written policies supporting toxic and hazardous waste minimization or reduction.. (See Tables 10, 109 and 110, Q. I: 6, X: 5-6.)

Locus of decision-making. Waste minimization policies may in some cases be developed by a parent company rather than a local facility, but must be implemented at the local level to be effective. In evaluating the extent of a facility's pollution reduction activities, Section X of the survey attempted to ascertain to what extent local facilities had responsibility for their own policies. Figure 5 shows the distribution of facility policies on waste management.

For three out of four (74%) of the facilities included in the survey, waste minimization policies are developed either solely or partially on site. This figure includes 33% with no parent company, 33% who develop their own waste minimization policies even though they do have a parent company and 8% who said both facility and parent are responsible for developing waste minimization policies. (See Table 112, Q X: 8.)

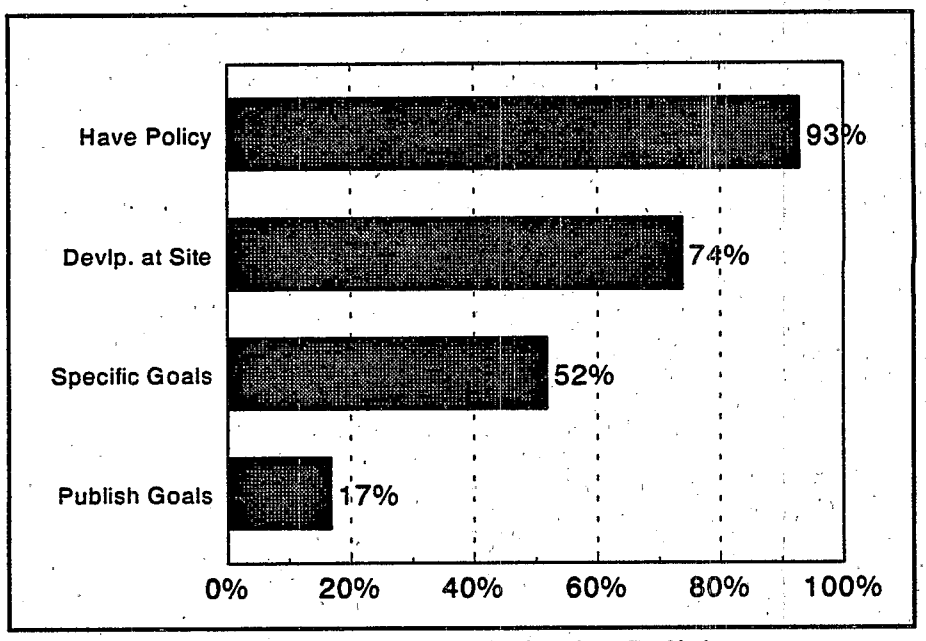

Figure 5: Waste Minimization Policies

One in five (19%) of all those surveyed said the parent company takes complete responsibility in the development of waste minimization policies. Seven percent volunteered that their facilities have no waste minimization policies. (See Tables 111-112, Q X: 7-8.)

Publicity about Policies. Just over half (52%) said their firm's waste minimization policies include specific waste reduction goals. Only one-third of those with goals (17% of all those surveyed) said their facilities had made public their waste reduction goals. (See Tables 113-114, Q. X: 9-10.)

The larger facilities (those with more than 200 employees) are more likely to have specific waste reduction goals, and to publish those goals, than are the smaller facilities. Among the larger facilities, two-thirds (63%) have specific waste reduction goals and 28% publish those goals. Among facilities with fewer than 50 employees, fewer than half (44%) have specific waste reduction goals and only 7% publish them. (See Tables 111-114.)

Tracking Waste. Seven in ten (70%) of those surveyed said their facilities track toxic substances and hazardous wastes to tie their generation to specific production processes.

Abatement Costs. In spite of facility activities geared toward hazardous waste minimization, seven out of ten (71%) estimated the pollution abatement and waste minimization costs at their facilities to be not more than 3% of total operating costs, including 25% putting the percentage at less than 1 percent and 38% at 1-3%. Thirteen percent estimated these costs at from 4-5%, and 14% thought they were more than 5% of total operating costs at their facilities. (See Table 115, Q. X: 11.)

It could not be determined from the survey whether pollution prevention costs are considered a positive cost (cost savings) versus a negative operating expense, such as pollution abatement and regulatory compliance costs. The extent to which perceived cost savings (or the lack thereof) are considered in facility decision-making for pollution prevention should be explored further.

Business Conditions

Business considerations influence how industry responds to the regulatory environment at the most basic level – by determining both their ability and their incentives to act. Moreover, when measuring trends, both increases and decreases in production strongly influence how to evaluate emissions reductions or increases.

More than half of those surveyed (52%) reported that their facilities' business increased over the past five years, with 17% saying it increased more than 25%. The other half are about evenly divided between those who say their business has remained about the same (24%) and those who say their business has declined (24%). (See Table 107, Q. X: 3.)

Measuring Pollution Reduction Progress. On the one hand, those facilities whose business has increased can be presumed to have both a financial stake and the financial capability for responding to new challenges. On the other hand, when public information about pollutants is given in gross amounts, an increase in business may mean an increase in pollutants that is both difficult to contain and difficult to explain. At the same time, facilities that are only maintaining or decreasing their production may appear to be improving their environmental performance when in fact they are not. Hence, it is important to consider emissions in both absolute terms and as a percent of production volume.

Voluntary vs. Mandatory Pollution Reduction Goals. These concerns were reflected in the comments of focus group participants when the survey instrument was being developed. Group members noted the difficult decisions managers face in meeting increasingly stringent and complex regulations. The results suggest that some companies believe voluntary programs can achieve protection and environmental benefits more cost-effectively than regulatory programs.

This belief may reflect the greater degree of control managers believe they have with voluntary initiatives. In a competitive business environment, managers base their decisions about investments in voluntary actions on how they might affect their competitive position. Voluntary programs without some control mechanism such as public scrutiny may put progressive companies at a competitive disadvantage.

On the other hand, voluntary initiatives may also serve as a negative incentive. Focus group participants and survey results (Table 35) indicated reluctance to meet current pollution reduction goals if new regulatory limits would then be established which did not give retroactive credit to firms that have already acted. Apparently this attitude reflects a concern by industry representatives that being out ahead of the regulations could work against them in the long run. Such views need to be countered if EPA intends to continue to push for voluntary initiatives as a major tool for achieving pollution prevention and reduction.

Communication Activities

A substantial portion of the survey focused on the communication activities at each facility, and some of those items reflect on both the capabilities and the incentives that industries have to encourage communication.

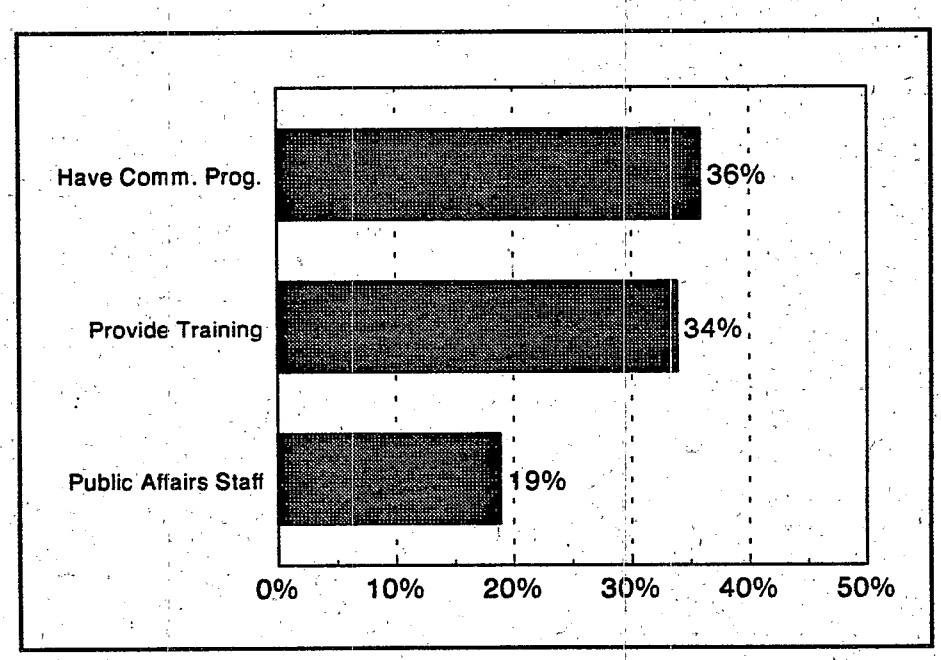

Figure 6: Communication Capabilities

As Figure 6 demonstrates, one in three (36%) said their facilities have active programs of public communication, one in three (34%)

said their staff who communicate with the public receive any formal communication training and just under one in five of those surveyed (19%) said their facilities have a public affairs staff. (See also and Tables 41, 81 and 83, Q. V: 1, VII: 1 and 3.)

The existence of a public affairs staff at the facility has a definite impact on the extent to which facilities engage in active public communication efforts, though this effect is no doubt due at least in part to the fact that it is mostly the larger facilities that have public affairs staffs.

On the other hand, though most facilities attribute some of their pollution reduction activities to SARA Title III, and those who are the most active in pollution reduction are also more likely than others to be communicating that fact, there is little other evidence from this survey that pollution reduction activities are externally driven by the need to communicate reductions to the community. Pollution reduction activities are far more frequently reported than are communication initiatives, as Chapters 2 and 3 document. Many of those surveyed see the public as largely apathetic about Title III information (Q. VIII: 3, also analyzed in Chapter 4). Moreover, that perception appears to reinforce their own failure to communicate actively. This is counter-intuitive to the generalized fears and concerns expressed during the legislative history of SARA Title III that the release of information to the public would result in undue public concern and a negative reaction.

Summary

As discussed more fully in the remainder of this report, the primary factor associated with pollution reduction activities is the size of the facility measured in number of employees. Those facilities that have more than 200 employees more frequently report pollution reduction than do smaller facilities.

Though more than six in ten of the facilities surveyed are reported to have waste minimization policies with specific waste reduction goals, most (more than 80%) do not publish them.

Where community outreach and communication are concerned, other factors such as visible aspects of production and having experienced environmental problems that received media attention become important, along with the institutional factors of having a public affairs staff and an active community communications program.

More than six in ten facilities are located within 500 feet of homes, businesses, schools, hospitals or recreational areas, have some form of visible cues of environmental releases of waste materials, and have experienced some kind of environmental problems related to recent environmental laws. These facilities were more likely to report communication activities.

Few facilities spend more than 3% of their operating costs on waste minimization activities. This may suggest to regulators that potential cost-savings are unlikely to provide a strong motivation for action. However, it is likely that at least some of those polled see this 3% as being a sizeable investment.

The rest of this report will take a more detailed look at industry actions, both in minimizing wastes and in communicating with the public about environmental issues. The primary focus will be on evaluating motivations for industry to reduce pollution and communicate with the public, looking particularly at the extent to which environmental and community right-to-know laws have shaped industry actions.

2. Waste Reduction and Elimination

All those surveyed were asked a series of questions about the extent to which their facilities have reduced the hazardous wastes generated, reduced their Toxic Release Inventory (TRI) releases, or actually eliminated some toxic substances from their plant's premises. Then they were asked to rate the importance of a series of factors, including environmental laws, in determining decisions on these issues. A later chapter of this report focuses on respondents' explicit evaluations of environmental and right-to-know laws. This chapter, however, focuses on respondents' reporting of how and why their facilities have changed their environmental practices. Based on these reports, an attempt is made to evaluate how environmental laws compare to other motivations to reduce pollution and wastes at industrial facilities.

Hazardous Waste Reduction

This opening section of the survey questionnaire asked respondents whether, in 1991, their facilities generated more, less or the same amount of hazardous wastes than they generated five years ago, and also whether their TRI releases were more, less or the same as five years ago (Questions I:1-4).

When asked to report on changes in waste per unit of production, as Figure 7 below demonstrates, three out of four (75%) of those surveyed said their facilities have reduced the amount of hazardous wastes they generate per unit of production over the past five years; 21% said they are producing about the same amount of hazardous wastes per unit of production, while 4% said they are producing more wastes per unit of production than they were five years ago. (See also Table 2.)

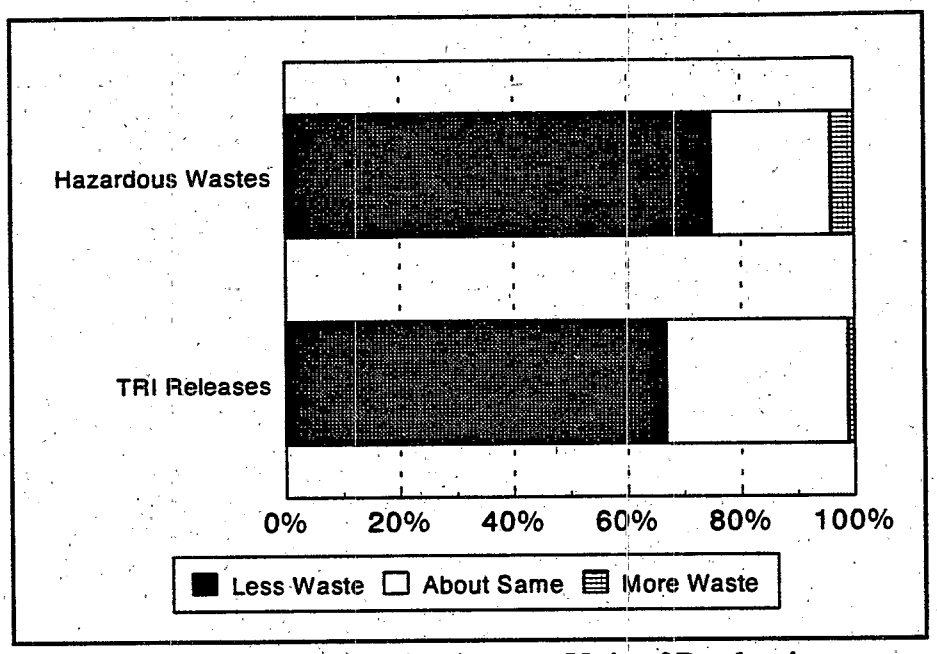

Figure 7: Waste Reduction per Unit of Production

Similarly, two out of three (67%) said they have reduced the amount of their SARA 313 TRI releases per unit of production; 32% say their TRI releases per unit of production have not been reduced, and 1% said they have increased. (See Table 4.)

Chapter 1 of this report indicated that more than half of the facilities included in this survey reported an increase in their business during the past five years. Yet two out of three (64%) said their facilities have reduced the *absolute* amount of hazardous wastes they produce, and 59% have reduced the absolute amount of their TRI releases, regardless of changes in production volume. Only 16% said they are producing more hazardous wastes now than they were producing five years ago, and 15% said their TRI releases have increased. The rest said their hazardous wastes and TRI releases are about the same as five years ago. (See Tables 1 and 3, Q. 1: 1 and 3.)

A few respondents explained that, while their overall waste volume has decreased, regulatory changes causing previously non-hazardous

wastes to be declared hazardous have made it difficult to reduce their volume of hazardous wastes.

Number of Employees. The one factor that consistently makes some difference in reported pollution reductions is the size of the facility (measured as number of employees). The larger facilities — those with more than 200 employees — were more likely to say their facilities have reduced both hazardous wastes and TRI releases, particularly when the measure is per unit of production. For example, among spokespersons at the larger facilities, 86% said their facilities had reduced their hazardous wastes per unit of production, compared to 68% of those at the smaller facilities with fewer than 50 employees. (See Tables 1-4.)

Industry. Whether the issue is hazardous wastes or TRI releases, differences in reported reductions are minimal among industries in the three SIC codes surveyed (pulp and paper, chemical, and refinery and petroleum).

Business Conditions. Those facilities where business has increased recently were more likely to report increased total hazardous wastes and TRI releases; but they were also more likely to report *decreases* in their hazardous wastes per unit of production than were those facilities where business has declined. Among facilities where business has increased, for example, 80% reported decreases in hazardous wastes per unit of production, compared with 63% of those with declining business. (See Tables 1-4.)

Means of Waste Reduction

The survey questionnaire listed a number of means of waste reduction and asked respondents to indicate which methods have been used at their facilities. Most respondents (77%) cited improved housekeeping practices (such as eliminating leaks, improving inventory control and improving equipment maintenance), as Figure 8 demonstrates. Changing the materials used (65%) and changing production processes (58%) followed close behind improved housekeeping. One in four (25%) said they have changed the products they make. (See Table 5, Q. I: 5)

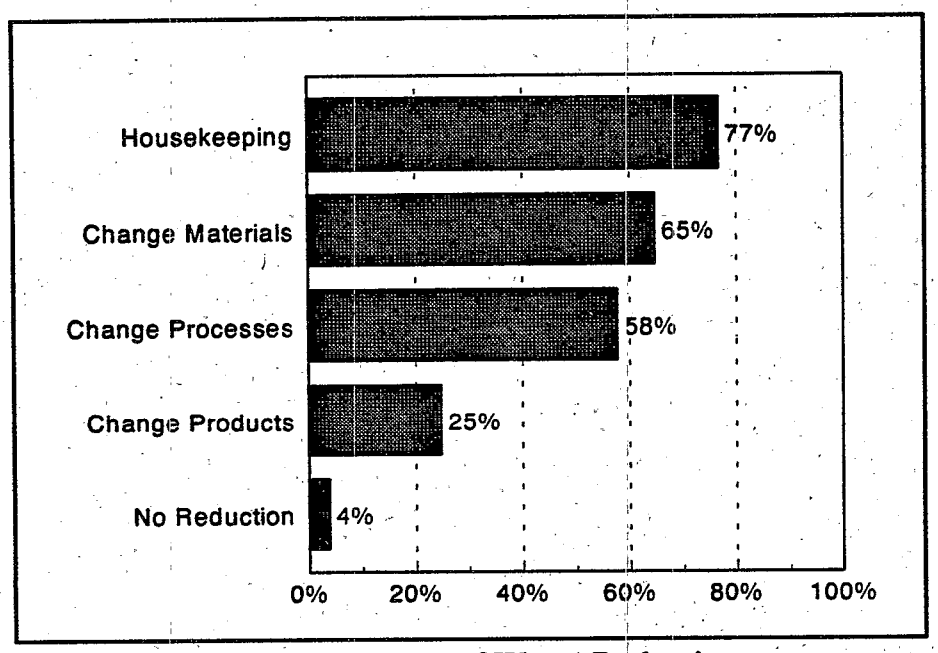

Figure 8: Means of Waste Reduction

Improved housekeeping practices are vital to the effort to reduce pollution, and it is a favorable trend if nearly eight in ten facilities have improved their housekeeping practices. The large numbers saying they have changed materials or changed processes is also encouraging. However, to encourage more of what it defines as pollution reduction (i.e., source reduction), EPA may want to consider ways to help more facilities move beyond housekeeping practices. The next few pages examine the survey findings on current motivations for and barriers to waste reduction.

Factors in Decision to Reduce Wastes

The following question was designed to assess what motivated firms to try to reduce wastes, and particularly to assess the relative importance of environmental legislation with other factors driving these decisions:

> *"Here are some reasons why your firm may have decided to try to reduce the volume of hazardous wastes generated or TRI releases. Please tell us how important each of the following were for your firm."*

Protecting the health of facility employees (cited by 68% as "very important") and meeting state or federal regulations (cited by 62% as "very important") outranked all other motivations for waste reduction decisions, as Figure 9 illustrates. (See also Tables 6-7, Q. I: 6.)

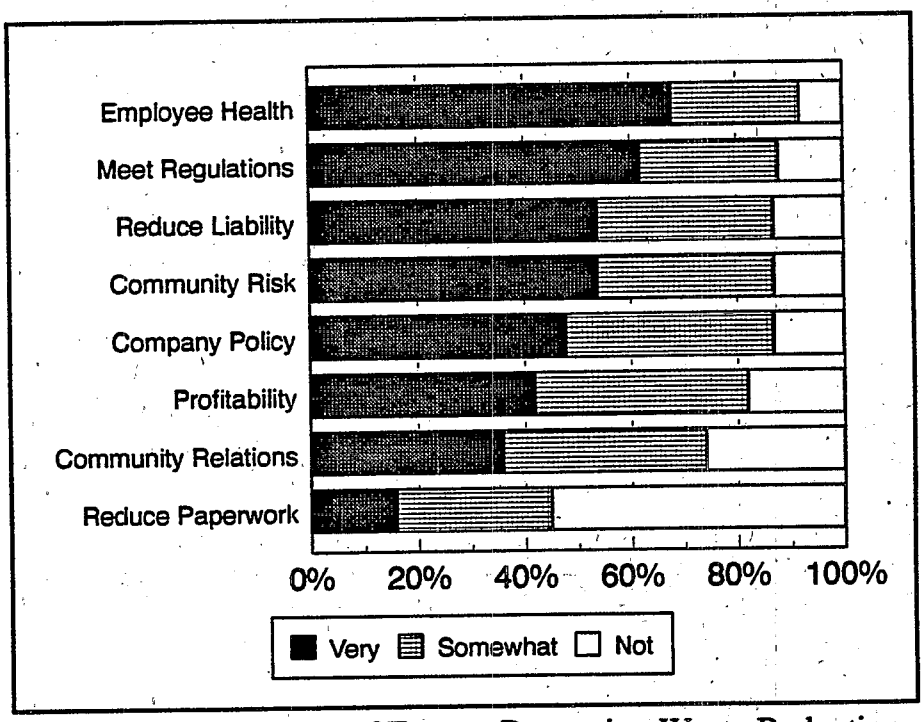

Figure 9: Importance of Factors Promoting Waste Reduction

About half of those surveyed cited reducing liability (54%), reducing risk to the community (54%) or complying with company policy to reduce pollution (48%) as "very important." Two out of five (42%) named improving profitability as a "very important" motivation. (See Tables 8-11, 13.)

Note that these five reasons were viewed as "very important" or "somewhat important" by about 85% of all those surveyed. Reducing paperwork is not an important motivation; less than one respondent in five cited that as "very important."

Improving community relations is somewhat less important than the top five reasons. About one in three respondents (36%) said that improving relations with the community was "very important," while another 38% said community relations were "somewhat important" as a motivation to try to reduce their hazardous wastes. (See Table 12.) EPA and communities may want to consider ways in which to bring community concerns to bear on industry pollution prevention decisions. Circumstantial and anecdotal evidence indicates that the annual publication of the nation's worst polluters, those at the top of the TRI list of firms ranked by volume of reported generation, gets the attention of managers of those firms. Firms at the top of the list seldom remain there for more than two years. More publicity about gains in pollution prevention could be helpful in enhancing a facility's image. This issue will be revisited as the results are presented for other communication items on the survey.

There were no major differences in reported motivations for reducing pollution based on industry type, contextual or public affairs factors included on Tables 6-13. However, there was a small (but statistically significant) difference in the importance of community relations as a motivation for reducing pollution, between those who reported visible aspects of production and those whose pollution was not visible. (See Table 12.)

Hazardous Waste Elimination

Another series of questions focused on whether or not industrial facilities had completely eliminated one or more hazardous waste products that they had produced in the past — and what factors were important in motivating those decisions. (See Q. II: 1-4)

Two out of three of those surveyed (65%) said their facilities had either completely eliminated one or more wastes that they had produced five years before (53%), or completely eliminated one or more TRI substances during that time period (40%). There were no differences among the three industries, nor among the other subgroups tabulated, except that large firms were more likely than small ones to have eliminated a waste or TRI substance. (See Tables 14 and 15.)

Once again, as Figure 10 illustrates, reducing employee health risks (cited by 35% of all respondents as "very important") led the list of motivations cited for eliminating these wastes, followed closely by meeting state and federal regulations (29%), complying with company policy (28%) and reducing liability (27%).[8] (See Tables 16-19.)

Using a different formula to make a product was cited by 21%, while 17% said they no longer make the product for which they had used the eliminated waste. Finally, 16% cited improving community relations and 13% reducing treatment costs as "very important." Just 7% said paperwork reduction was "very important." (See Tables 20-24.)

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[8] Though the top motivations are similar to those for reducing wastes and TRI releases, the proportions saying these reasons are "very important" are much smaller. This is partly because there is less conviction in these responses (fewer of those responding said they were very important), but also because approximately one in three of those surveyed said their facilities had not eliminated any hazardous wastes or TRI substances, and thus did not respond to these questions.

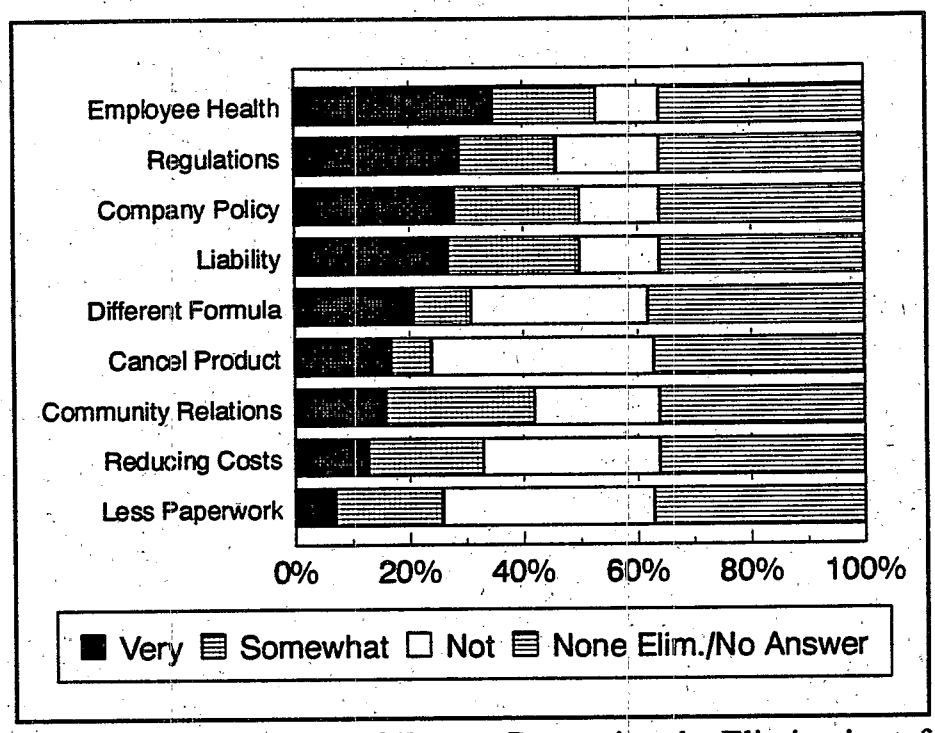

Figure 10: Importance of Factors Promoting the Elimination of Wastes & Releases

Industry Differences. As Tables 16-24 indicate, there were no differences between industries in reasons given for eliminating wastes. However, firms in the chemical industry were more likely than those in the pulp and paper industry to cite dropping products as a means by which wastes and/or TRI releases were eliminated. In contrast to the chemical industry, the pulp and paper industry has many fewer different types of reportable wastes, so it would be harder for them to eliminate a waste type by eliminating a product line without making serious inroads on production. (See Tables 16-24.)

Number of Employees. Although few firms (7%) indicated that they had eliminated a waste in order to reduce paperwork, small firms (12%) were twice as likely as large firms (5%) to cite this as a reason. Small firms have fewer different waste types than large firms so that eliminating a waste may well result in their no longer having any hazardous wastes to report, releasing them from the burdens of tracking and reporting hazardous wastes. (See Table 22.)

Small firms were also twice as likely as large firms to have eliminated a waste by no longer making a product that resulted in hazardous waste generation: one in five (21%) of the small firms and only one in ten (11%) of the large firms said this was a "very important" reason. (See Table 24.)

Public Interest Increased. Those representatives who reported increased public interest in their facilities were more likely to report community relations as an important motivation for eliminating wastes. (See Table 22.) This finding is in contrast to survey findings that the public is perceived as apathetic and few respondents make their waste reduction goals public.

Barriers to Waste Reduction

In the face of so many compelling reasons to reduce or eliminate certain substances from their premises, why are some firms unable to eliminate more substances? Figure 11 and Tables 25-30 show the reasons provided by survey respondents.

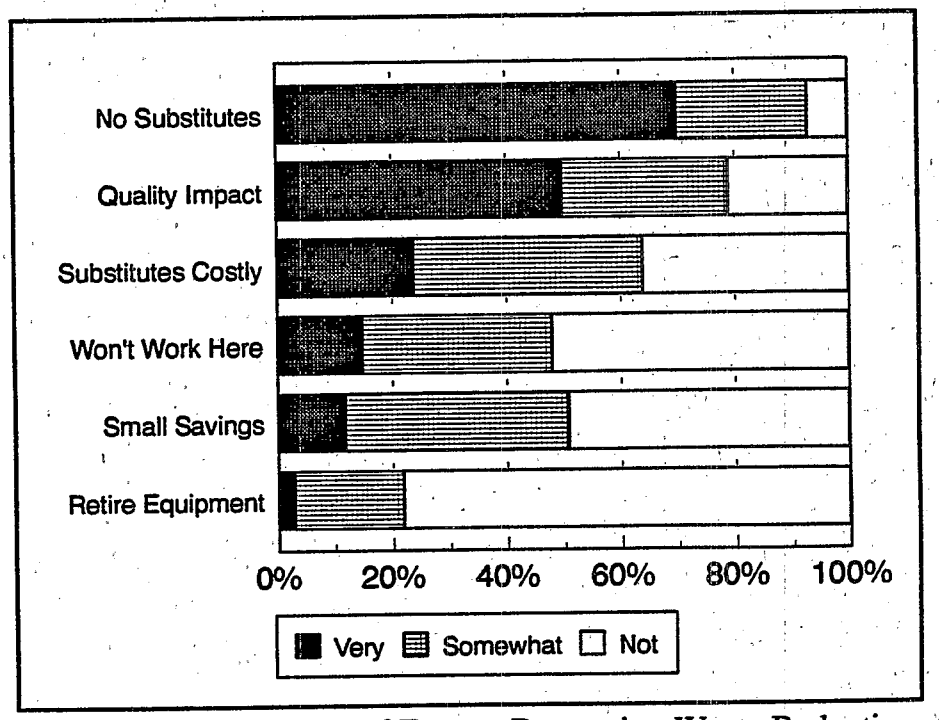

Figure 11: Importance of Factors Preventing Waste Reduction

Most firms say that the lack of less hazardous or toxic substitutes is the largest barrier to doing more pollution prevention. This lack of substitutes is both a total lack of acceptable substitutes (cited by 70% as "very important") and a lack of substitutes that are not much more expensive (24%). This finding suggests the need to find other inputs and other production processes to substitute for current production patterns; and perhaps the need to substitute less satisfactory, albeit less polluting, alternatives to current products.

Another barrier is the perception that available substitutes may hurt product quality, cited by half the firms as "very important." In addition, one in seven (15%) fear that what has not been tried "may not work here." This reason was cited by about one in seven (15%) as "very important." Just about one in ten (12%) said that the potential for only small cost savings is a "very important" deterrent to waste reduction.

A number of respondents volunteered that they are not able to eliminate hazardous substances because their customers will not accept the end result, either because of the product itself, or because of the costs involved. Said one, "Our customers do not want to change from what they are now buying." Another volunteered, "Customers do not want to change from solvent-based products to water-based products because of costs at their end." And another, "Customers will not accept new products because they are more expensive and as long as we can offer two types of products they will continue to select the cheaper products. People are slow to change their ideas and ways."

Price sensitivity among manufacturers may reflect the same philosophy found at the consumer level. While consumers report environmental "friendliness" as an important attribute, price and quality are reported as the major criteria for purchases. Consumers also report a low frequency of not purchasing from companies based on their environmental record.[9]

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[9] Roper Organization, *Public Attitudes and Individual Behavior*, July 1990.

What was not assessed was whether the lack of regulatory requirements may *impede* hazardous waste elimination and facility reduction efforts. In reality, very few federal or state laws exist which require emissions reduction. One example is the state of California Air Toxics Hot Spots Bill (AB2588) which requires that facilities complete an emissions inventory and that certain facilities conduct a health risk assessment. Pending those results, facilities may be required to notify the affected public and undertake emissions reduction activities.

A requirement such as AB2588 combines both the regulatory initiative of traditional compliance and enforcement provisions with public access to information as incentives for pollution reduction and prevention. While not within the scope of this research project, it would be interesting to explore which of these two motivators is most effective. The law also requires active communication and notification and specifies communication channels rather than relying on passive availability of information as in SARA Title III. EPA may want to consider research which evaluates the relative effectiveness of this type of approach for achieving emission reductions.

Actions to Prevent Releases

Facility representatives were also asked whether their facilities had taken certain specific actions to prevent releases, and Figure 12 shows the results. (Survey Section IV, Q. 1-4). Nearly eight out of ten (78%) of those surveyed said their facilities have added to their containment measures such as dikes, berms, etc., in the past five years to reduce the chances of spills or releases. The others either said their facilities do not need these types of containment measures (5%) or their containment measures were already adequate five years ago (17%). (See Table 31, Q. IV: 1.)

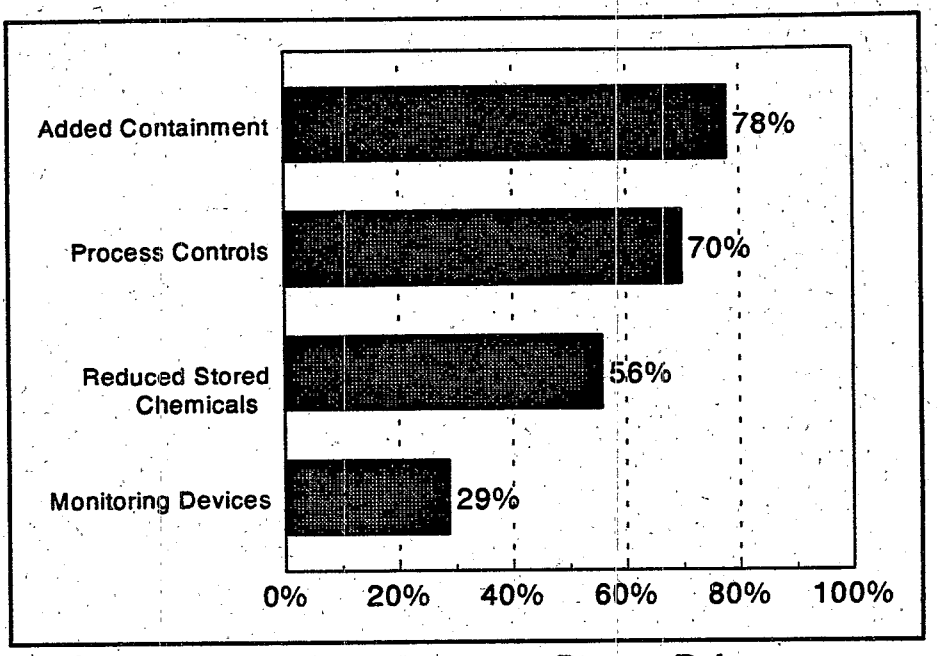

Figure 12: New Measures to Prevent Releases

Seven in ten (70%) said their facilities have installed additional process controls to reduce hazardous wastes generated and/or TRI releases to the water or air. The remainder said their process controls were already adequate five years ago. Finally, 56% said they have reduced the amount of chemicals stored at their facilities. (See Tables 33 and 34, Q. IV: 3-4.)

About one in three (29%) said their facilities have instituted or added monitoring devices to detect releases. Two out of three (63%) said their facilities do not need such devices, while the rest (9%) said their monitoring devices were already adequate five years ago. (See Table 32, Q. IV: 2)

There were no major reported differences, either by industry or by any other subgroup, in the proportion saying they have added containment devices or process controls or have reduced the amount of chemicals stored at their facilities. However, there was some reported variation in the proportion saying they have added monitoring devices.

Number of Employees. Nearly half (45%) of the largest facilities (with more than 200 employees) said their facilities had installed monitoring devices, compared to 23% of those with fewer than 50 employees. (See Table 32.)

Visible Pollution. Those in facilities with visible pollution were nearly twice as likely as others (34% to 19%) to say they have added new monitoring devices; and they were also somewhat more likely than those without visible pollution to say they have added new containment measures and new process controls. (See Tables 31-33.)

Increased Communication. Those who have increased their communication activities were nearly twice as likely as others (38% vs. 20%) to say they have added new monitoring devices; and also somewhat more likely to have added containment measures and new process controls. (See Tables 31-33.)

Public Affairs Staff. Though only 29% of all those surveyed said their facilities had added monitoring devices, more than half (55%) of those respondents in facilities with public affairs staffs responded positively on this question.

The correlations between communication variables and the installation of monitoring devices may be, at least to some extent, a result of the fact that larger facilities (those with public affairs staffs) are the most likely to have problems that require monitoring devices, and they are also the most likely to have the resources to install these devices.

Attitudes toward Hazardous Waste Management

When asked to agree or disagree with three statements regarding how environmental regulations may have affected their facilities' decisions on waste management, respondents appeared more likely to go beyond the requirements of the regulations than to hold back for fear that they would not get credit for their early actions if restrictions were tightened. Though 10% agreed strongly that "if

we reduce our waste now, it could hurt us later if EPA issued required goals for percentage waste reductions," 27% agreed strongly that "we manage some non-hazardous wastes as hazardous to avoid future liability risks." (See Tables 35-36, Q. IV: 5.)

Six in ten (58%) agreed (including 10% agreeing strongly) that "if we reduce our waste now, it could hurt us later if EPA issued required goals for percentage waste reductions." On the other hand, 42% disagreed with this statement, including 16% who disagreed strongly. (See Table 35.)

Moreover, seven in ten (72%) agreed (27% strongly) that "we manage some non-hazardous wastes as hazardous to avoid future liability risks." Of the 28% who disagreed with this statement, 14% disagreed strongly. (See Table 36.)

In addition, one in three (35%) disagreed strongly with the statement that "Unless required by regulations, it is hard to persuade management to invest in waste-minimizing innovations." Less than one in ten (8%) agreed strongly with this statement. (See Table 37.)

The survey also questioned facility representatives about their general toxic substance and pollution reduction management practices (Survey section IV, Q. 6). Eight in ten (79%) said their facility almost always considers worker health risks prior to the purchase or use of new materials. The rest either said just "sometimes" (18%), "hardly ever" (3%), or "never." (See Table 39.)

Three out of four (73%) said their facility almost always measures annually its reductions in hazardous waste generation and toxic releases. Sixteen percent said "sometimes," while 10% said "hardly ever" and 1% said "never." (See Table 40.) However, this information is not routinely or actively distributed to the public, as Tables 51-57 demonstrate. Since toxic release information is required to be reported and the sample was drawn from TRI reporters, one can only speculate on the response to this question. However, the "hardly ever" responses are nearly all from small facilities.

Sixty-three percent said their facility almost always includes hazardous waste and toxic release reduction considerations in the design of new or modified products or processes. (See Table 38.)

Pollution Reduction Index

In order to test further the possibility that communication factors may be affecting decisions on pollution reduction, an index of pollution reduction was created, and that index was then measured against the communication activities of each respondent. The "pollution reduction index" was created by counting the number of positive responses (indicating pollution has been reduced) of each respondent on the following five factors:

- reductions in hazardous wastes per unit of production,
- reductions in TRI releases per unit of production,
- elimination of any hazardous wastes,
- elimination of any TRI substances and
- reduction in stored chemicals.

Figure 13 shows how the facilities responding to the survey fare on this index. Ninety-four percent of all those surveyed indicated that their facilities had reduced pollution by at least one of these measures, and 16% said their facilities had reduced pollution on all five of these measures.

Table 118 shows how positions on the pollution reduction index are related to communication activities, which may add insight into the potential motivations for pollution reduction among industrial facilities. Those facilities that report the largest number of pollution reduction/prevention activities tend to be the larger facilities. In addition, those facilities which report most pollution reduction/prevention activities are also those which have publicized their reduction goals and those which report increases in their public communication activities during the past five years. They also are the facilities most likely to offer employee communication training. The differences reported are statistically significant, though some

may not be dramatic differences. Most of the differences among facilities are more pronounced at the lower end of the scale (differentiating those who have reduced none, one or more than one) than at the top end of the scale.

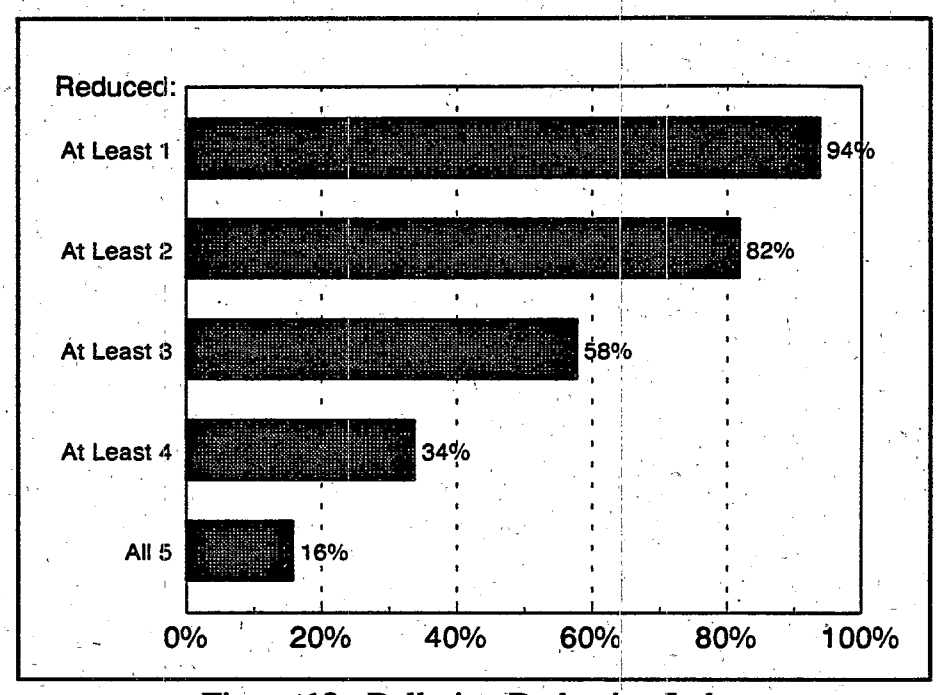

Figure 13: Pollution Reduction Index

Industry. There were no substantial differences among industry groupings on this index.

Increased Communications. Among those who have increased community communications, just 2% report no reductions on the index and 38% report four or more. For the facilities which have not increased communications, 10% report no reductions and 29% report four or more.

Employee Communication Training. Among those who report providing employee communication training, just 9% report no or one reduction measure and 42% report four or more. Among those who say their facilities do not provide employee communication training, 22% report no or one reduction measure and 29% report four or more.

Communication Program. Among those facilities which have an active community communication program, 41% have reduced pollution on four or five of the measures, compared to 30% of those who do not have community communication programs.

Size. The smaller facilities (with fewer than fifty employees) were less likely to report reduced pollution on four or five measures (30%) than were the larger facilities (44%).

Summary

During the five-year period evaluated in this survey, two out of three (64%) said their facilities have reduced the *absolute* amount of hazardous wastes they produce, and three in four (75%) reduced the amount per unit of product. Similarly, three out of five (59%) said they have reduced the absolute amount of their TRI releases and two in three (67%) have reduced TRI releases per unit of product. Moreover, more than half (53%) said they have completely eliminated at least one type of hazardous waste they once produced, and 40% said they have completely eliminated at least one TRI substance.

A key objective of this research project was to identify and evaluate motivations for pollution prevention and risk reduction activities. Looking at individual measures of pollution reduction — such as reductions in hazardous wastes, reductions in TRI releases, or reductions in stored chemicals — employee health ranks at the top of the list in stated importance in these decisions, with meeting state and federal regulations and fear of liability close behind. The differences in pollution reduction by industry type are minor. The factor that predicts pollution reduction more often than any other is the size of the facility, measured in terms of number of employees.

Taken at face value, these responses would seem to indicate that public perceptions are not a major contributor to facility decisions to undertake pollution reduction activities. When an index of pollution reduction activities is compared with communication

activities, it shows that communication activities are related to pollution reduction, but not in a dramatic fashion. There is a trend that suggests that more openness and a public orientation is associated with pollution reduction. Based on this survey, the Kanawha Valley[10] risk communication evaluation and the six-community study,[11] the lack of demand for information by the community reduces this as an incentive for pollution reduction or a marketable company attribute.

The importance of the size of the facility in predicting pollution reduction and prevention activities might suggest that more pollution prevention effort should be focused on small businesses and/or facilities. Small firms have been the focus of attention in a number of state pollution prevention programs. State studies suggest that small firms account for only a small proportion of the hazardous wastes generated.[12] While many of these states have concluded that small firms will not lead in developing innovative technologies, these firms can be helped to adopt new methods of production as they are developed.

Chapter 3 evaluates the results of the survey with regard to community communications — how public communication activities have changed over the past five years, and what demands the public has made on industrial facilities for environmental information. Chapter 4 contains the explicit evaluation by respondents of the effects of recent environmental and community right-to-know laws.

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[10] Susan L. Santos and David B. McCallum, "Kanawha Valley Health Effects Study," Risk Communication Research Project, Focus Group and Key Interviews, April 1993.

[11] David B. McCallum, Ph.D. and Susan L. Santos, M.S., "Public Knowledge and Attitudes of Chemical Risks in Six Communities: A Report of a Follow-up Survey," Discussion Draft, Columbia University Center for Risk Communication, September 1993.

[12] For example, in Wisconsin, studies by the Department of Natural Resources show that 93% of the wastes are generated by the top fifty companies.

3. Community Outreach and Communication

Recent environmental laws have not only required industry to monitor and reduce the amount of pollution it produces — they have also required that industry provide information to the public about industrial pollutants released into the environment. A substantial portion of this survey (sections V-VII) was dedicated to assessing how and to what extent these requirements may have affected facilities' community outreach and public communication activities. Once again, the questionnaire was designed to first assess what these facilities do (and why) in the way of public communication, and then look more specifically at how that is related to recent legislation and overall environmental management practices.

Communication Program

Nearly half of those surveyed (47%) said their facility's efforts to communicate with the community have increased over the past five years; just 1% said they have decreased. Yet, as Figure 14 illustrates, barely more than one in three (36%) said their facilities have a program for providing information to the community about their operations and environmental issues, and just 19% said their facilities have any staff dedicated to public affairs as their primary function. (See also Tables 41, 42 and 83; Q. V: 1-2; VII: 3.)

The three industry categories included in this study do not differ substantially on their reported community outreach and communication activities. The larger facilities, however, reported much more activity in this area than did the smaller ones, as did those facilities that have public affairs staffs and those that have increased their communication efforts. As may be expected, those that reported

visible aspects of production and environmental problems that stimulated media interest also reported more community outreach than did others. These differences were reported on the first question about communications — whether the facility had an active program of community information — and held throughout all the communication issues. The importance of these visible cues suggests that industry communication efforts are reactive, and probably short-lived, rather than proactive and sustained.

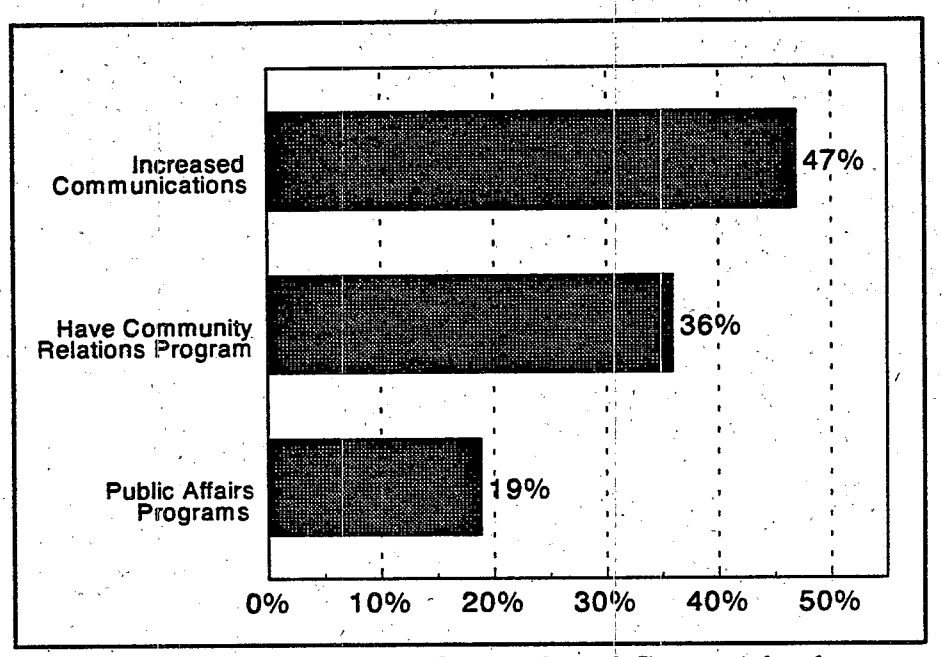

Figure 14: Community Outreach and Communication

Industry. While 36% of all those surveyed reported that their facilities have community information programs, there was no strong variation among the three industry groups surveyed. The responses only varied between 33% in the chemical industry, 36% in pulp and paper and 44% in the refinery and petroleum industry. (See Table 41.)

Number of employees. Nearly six in ten (59%) of those at larger facilities (with more than 200 employees) said their facilities have community information programs, compared to just 18% of those at facilities with fewer than 50 employees.

Visible Aspects of Production. Among those reporting visible aspects of production from their facilities, 44% said they have community information programs, compared with 22% of those not reporting visible aspects of production.

Recent Environmental Problems. Forty-seven percent of those in facilities that have had environmental problems receiving media attention said their facilities have community information programs, compared with 28% of those not reporting such high-profile environmental problems. Again, proximal events or visual cues appear to be major factors motivating communication.

Public Affairs Staff. Community information programs are more than twice as prevalent at facilities with a public affairs staff (62% have them) as at those without a public affairs staff (just 30%).

Increases in Communication Efforts: There is a strong relationship between having a communication program and increasing communication efforts. Of those who say their communication efforts have increased during the past five years, 63% have communication programs, compared with just 12% of those who have not increased their communication efforts. Clearly having an established plan and communication program serves to facilitate communication and outreach.

What means of communication are used most often, and who are the primary audiences for targeted communications on pollution reduction issues? A variety of communication activities were listed on the questionnaire, and all those surveyed[13] were asked to indicate which, if any, of these methods their firm had used within the past year to communicate with the public (Q. V: 3.). It is to be noted that nearly half (43%) said their firms had not communicated with the public by any of these means during the past year. Some, of course, had utilized multiple methods of public communication.

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[13] This question was asked of all respondents, including those who said their facilities did not have an active public communications program.

Figure 15 shows the proportion of respondents who said their facilities had utilized each means of public communication. The most common means of communication included holding meetings with community leaders (cited by 36%) and inviting the public to open houses or plant tours (32%). One in five (19%) said their facilities had run advertisements, 17% have maintained a telephone "hotline," 12% have circulated newsletters, 12% have formed community advisory groups, and 11% have held "town meetings." Fewer than one in ten have utilized opinion research techniques such as focus groups (8%) or a public opinion survey (7%) to determine community needs and attitudes. (See also Table 43.)

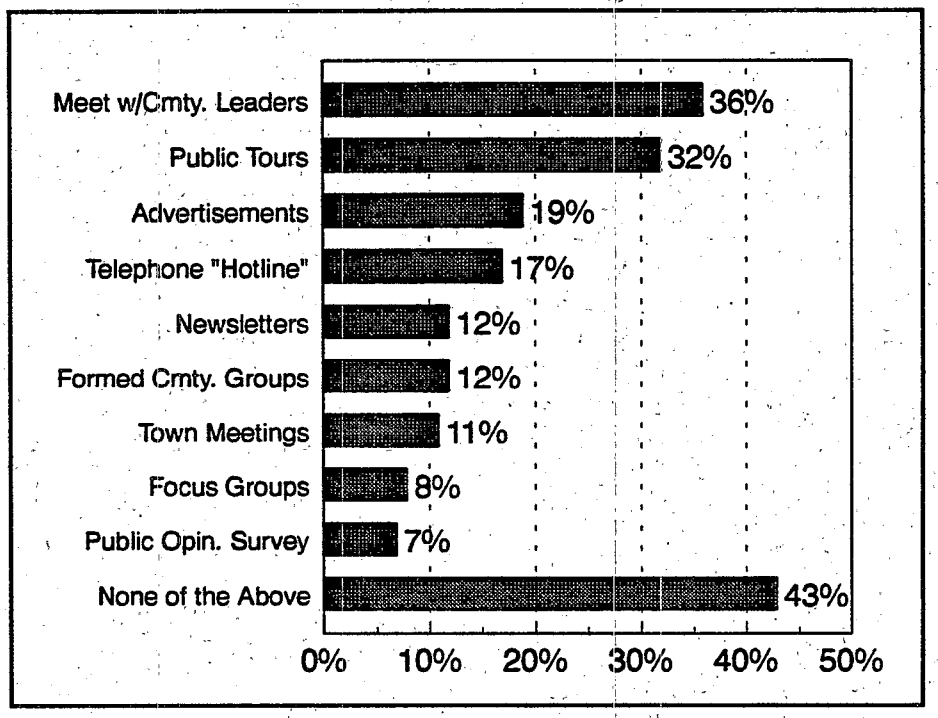

Figure 15: Methods of Community Outreach

Among those facilities which do utilize some regular means of communicating with the public, the focus is primarily on community leaders and activists, rather than on the general public. It is much more common to communicate with those who are the most active — i.e., community leaders or those who have or will take the time to come to a plant open house — than to conduct research to find out what the community as a whole thinks about the plant and other

local issues. Moreover, only 19% have run advertisements, 12% have circulated newsletters, and 11% have held town meetings, all activities that could be designed to expand the information available to a broader cross-section of the general public.

Industry. There are not, for the most part, substantial differences in outreach activities based on industry type.[14]

Number of Employees. The one factor that consistently predicts whether facilities use any or all of these means of public communication is the size of the facility as measured by the number of employees. Among those facilities with more than 200 employees, nearly nine out of ten (89%) have utilized at least one of these communication means; among those with fewer than 50 employees, just 29% have utilized at least one. For each single means of communication, the differences in utilization based on the number of employees is dramatic and statistically significant.

Whether the type of communication activities reported by those surveyed is most effective depends on what the overall goal of public communication is. If the goal is primarily to allay the concerns of those who are active and attentive, then it may make sense to focus communications on community leaders and activists. If, however, the goal is to ensure that the broader public understands (a) the risks, (b) what industry is (or is not) doing to minimize them and (c) what the public itself needs to do to ensure its own health and safety, then a more active public communication program would be in order. The survey did not evaluate the goals of communication activities or whether facilities have explicit goals for communication activities. Additional research such as followup focus groups with respondents might shed some light on this question.

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[14] The Responsible Care® program of the Chemical Manufacturers Association (CMA) has a code practice requiring CMA member companies to engage in community outreach. However, not all of the respondent chemical facilities are necessarily affiliated with CMA member companies.

While the focus on community leaders is important, the effectiveness of only targeting this group is questionable. Results from a survey of six communities[15] indicate that trusted intermediaries (educators, health professionals, non-management employees) may be important targets for information dissemination. Moreover, while a small cadre of "opinion leaders" may dominate public discussion on most occasions, experience has shown that when controversy erupts, the circle of those who are interested and/or affected may be enlarged dramatically.

Motivations for Public Communication. All those surveyed were next provided with a list of possible reasons for having a program of public communications, and asked to rate the importance of each of these reasons in their own firm's decision on whether or not to have such a program. (Q. V: 5). Figure 16 illustrates the relative importance given to each of these motivations.

Increasing credibility with the community, a good cost-benefit ratio and turning around perceptions about past problems in the community were rated as "very important" or "somewhat important" factors by more respondents (about seven out of ten) than any other motivations for having a public outreach or communication program (each seen as "very important" or "somewhat important" by two to four in ten). Yet, as Figure 16 demonstrates, none of these factors is seen as "very important" by more than one in three of those responding to the survey.

Seventy-six percent said increasing credibility was either very important (33%) or somewhat important (43%). Sixty-eight percent said that the small cost of public communication given the benefit in improved relations is either very important (31%) or somewhat important (37%). (Tables 44 and 47.)

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[15] David B. McCallum, Ph.D. and Susan L. Santos, M.S., "Public Knowledge and Attitudes of Chemical Risks in Six Communities: A Report of a Follow-up Survey," Discussion Draft, Columbia University Center for Risk Communication, September 1993.

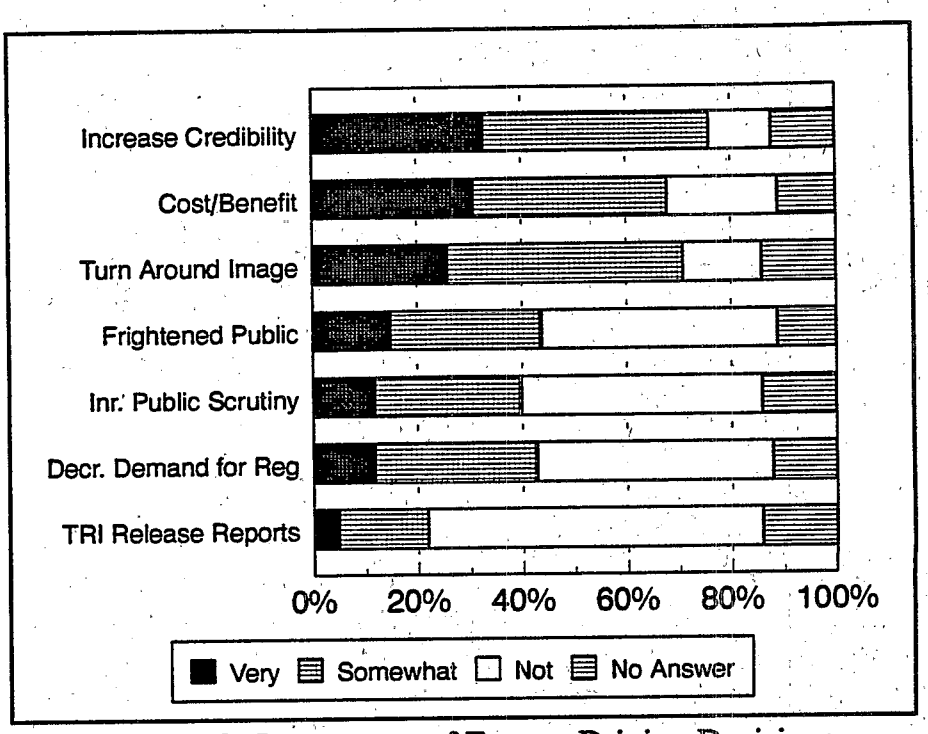

Figure 16: Importance of Factors Driving Decisions on Community Outreach & Communication

Seven in ten (70%) said that helping to turn around perceptions about past problems in the community is either very important (26%) or somewhat important (44%) as a reason for having a public communication program. (See Table 48.) Other findings cited previously indicated that 36% of the respondents said that improving community relations was a "very important" factor (with 38% saying "somewhat important") in reducing hazardous wastes or TRI releases. (See Table 12.)

Increased public scrutiny, risk communications that have frightened the public, and the desire to lessen the public demand for more stringent regulations were each cited by 40-44% as either very (12-15%) or somewhat (28-31%) important. Just 22% said publicity about past environmental problems was either very (5%) or somewhat (17%) important as a reason for having a public communication program. (See Tables 45, 46, 49 and 50.) These findings are in seeming contrast to the survey findings which show that those

facilities with previous problems and/or visible cues were more likely than others to have an active communication program.

Some of those surveyed volunteered that either they or their corporate management believed in the importance of good community relations. Said one, "Senior management recognizes the political value of public image." Another said the facility wanted to "build trust and understanding between the facility and the community." One stated that the company "had to have community approval and acceptance to move into a new location for our headquarters and manufacturing plant." Finally, one environmental manager with a clear vision of the importance of community relations to his facility said, "[It is important to have a community relations program] to keep the neighbors informed on what goes on at the facility. Often the neighbors suspect the worst and are relieved when they view our process and safety procedures."

Thus, general concerns about the need to increase public credibility and the low perceived cost relative to the potential benefits are apparently equally important as rationales for public communication, as are concerns about correcting misconceptions about past environmental problems. These findings raise a question about why only one in three of these facilities have programs of public communication – the same proportion who say these motivations are "very important." The explanation based on the quantitative findings could be simply that a factor that is only "somewhat important" is not important enough to merit action.

However, some further exploration of this question qualitatively could be extremely helpful in understanding the dynamics of corporate communication efforts in communities. Even those without "active" communication efforts may be communicating or perceive the need to do so. Lack of skills in mounting effective communication efforts and low public demand for information could also be influencing the decisions of a largely technical staff for whom communication efforts are an added responsibility.

The most likely explanation is that, though these respondents perceive that the benefits of public communication are high relative to the costs, those responsible for communication are mostly technical plant personnel whose activities are driven by responding to technical or regulatory environmental situations rather than by the needs of long-term communication planning. Since most firms have not allocated the resources for plants to have a public affairs staff, the public communication function, at least in terms of routine communication and long-term planning, takes second place to the more technical responsibilities of plant personnel.

Additionally, those personnel are not given the necessary training in communication or community outreach as documented later in this chapter. The low percentage of facilities that provide communication training to staff is another indication that communication does not receive enough attention in plants' strategic planning processes and that the plant personnel's communication skills may not be sufficiently honed. Communication with the public may not be perceived as a part of the environmental manager's facility responsibilities. Without specific performance objectives and responsibilities tied to communication efforts, it is easy to see why these activities may languish.

Providing Information on a Voluntary Basis — What and to Whom. The next question raised relates to how frequently, and for what purpose, these facilities provide information to the public without having received specific requests (Q. V: 6). The type of information most frequently provided to the public without specific requests consists of the type of general chemical toxicity information included in the Material Safety Data Sheets (MSDS) — and the primary target for this information consists of emergency responders (police, fire-fighters, emergency medical personnel, for example), and not the general public.

Twenty-eight percent said they frequently provide general chemical toxicity information to the public without being asked. About one in five said their facility frequently provides information

about what to do in an emergency (20%), general plant operations (19%), or SARA Title III reporting forms (18%). Just 13% said they frequently provide reports on efforts to reduce risks to the public, 11% frequently provide accident/incident histories, and 8% frequently provide reports on environmental problems or risks at the plant without any specific requests. (See Tables 51-57.) Other research, including work done with the National Institute of Chemical Studies in the Kanawha Valley[16] suggest that a primary information concern of the public is emergency response information. The public, though apathetic, also wants to know what a facility emits, but is not aware that they have access to this information under Title III.

Once again, the evidence is that communication is aimed at those who are active and involved in plant issues, rather than a broader cross-section of the general public. The most frequently cited targets for public communication programs are emergency responders, cited by 62% of all those surveyed, followed by government officials (49%) and community leaders (48%). Just 34% cited the general public, 30% health professionals and 25% the media as targets for their communication efforts. Sixteen percent said they target educators and 11% environmental activists — while 20% said their communication efforts are not targeted. (See Table 58, Q. V: 7.)

These findings certainly help to explain the low levels of information found among the public in surveys conducted by the Center for Risk Communication during 1988 and 1992.[17] Awareness and self-rated knowledge about chemical risks were minimal in 1988, and they did not increase over that four-year period. Information about environmental issues at industrial facilities is not reaching the public at large because community

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[16] David B. McCallum, Ph.D., Susan L. Santos, M.S. and Sharon Hammond, Ph.D., "Kanawha Valley Health Effects Project: Results of a Telephone Survey," in preparation, April 1994.

[17] McCallum and Santos, "Public Knowledge and Attitudes of Chemical Risks in Six Communities," 1993.

outreach activities are not as a general rule targeted to that audience; nor is it targeted to those seen by the public as trusted sources.

Information dissemination to the public has been ineffective because it has been passive in nature. If people are not motivated to ask questions by the proper authorities, they remain unaware of what is happening on environmental issues at these facilities. The lack of active outreach or two-way communication efforts by industry evidenced by this survey, along with the 1988 and 1992 general public survey results indicate that passive provision of information is ineffective in increasing community awareness or changing perceptions and knowledge levels.[18]

The reasons for the lack of active communication to the public are probably varied. One possible reason cited in the pre-survey focus groups is the fear that information on chemicals or releases might heighten public concern. This is certainly a valid concern on the part of industry in many cases, particularly if spokespersons have not been trained in the principles of risk communication. However, the potential for public backlash can increase if community residents believe information is being deliberately withheld. Frustration over the lack of accessibility of information may also be tied to public perceptions of trust and credibility, as indicated by the 1988 and 1992 general public surveys cited above.[19] Alternatively, if an industrial facility has developed a reputation for providing information to the community on a routine basis, then, at least in the absence of a crisis, it should be possible to provide information without creating undue public concern.

Outside Assistance with Public Communication. Industry representatives were also asked whether they receive aid and

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[18] McCallum and Santos, "Public Knowledge and Attitudes of Chemical Risks in Six Communities," 1993.

[19] Ibid., McCallum and Santos.

encouragement from their trade associations where public communication is concerned (Survey Section V, Q. 9-10). Most said that they do receive such aid, and of those who do, the most common form of aid received consists of communication training materials for their employees.

Three out of four (76%) said their industry trade association encourages or supports their efforts to communicate with the public, and 48% of all those surveyed cite training materials for their employees as a form of support they receive from this source. (See Tables 59 and 60.)

Other aids received from trade associations include an information clearinghouse with other companies, (cited by 39% of all those surveyed), materials for the public (35%), and media support (28%). Thirty percent of those surveyed said that programs or materials provided through their trade associations have helped in developing and maintaining a community outreach program at their facility. (See Table 60.)

Industry. Those in the chemical industry were substantially more likely to report trade association assistance with public communication activities. Nearly nine out of ten (86%) of the chemical industry representatives surveyed said their trade association[20] encourages their public communication efforts, compared with 73% in the refinery and petroleum industry and just 56% in the pulp and paper industry. (See Table 59.) In addition, 60% in the chemical industry said their trade association provides employee training materials for public communication, compared with 38% in the refinery and petroleum industry and 26% of those in pulp and paper. (See Table 60.)

[20] Many of these respondents may be referring to the Chemical Manufacturers Association (CMA). However, not all facilities necessarily represent CMA member companies.

Increases in Communication Efforts. The importance of trade association assistance can be seen in the correlation of such assistance with increases in communication activities. Of those who said they had increased their communication activities within the past five years, 85% said their trade associations encouraged such communication efforts, compared with 65% of those who have not increased their communication efforts. (See Table 59.) The impact of CMA's Responsible Care® community outreach code on communication activities may account for some of this increase.

Communication Staff and their Training

Asked what types of employees have responsibility for communicating with the public (Q. VII: 3), fewer than one in five (19%) said their facility had its own public affairs staff. Eight in ten (82%) named the plant manager as being responsible for public communications, followed by corporate communications (cited by 53%), facility environmental affairs staff (53%) and other technical staff at the facility (26%). (See Table 83.)

Most public communications at these industrial facilities is being carried out, not by public affairs professionals, but by the plant manager or more technical plant staff — except when corporate public affairs officials step in to help direct local facility communication efforts. Further, most are not given training in communication with the public.

Even though more than half of those surveyed said they had received employee training materials from their trade association, only 34% said their facilities have conducted one or more communication training sessions for their employees. Moreover, only 10% said more than 60% of their employees who are responsible for communicating with the public have had formal training, and 5% said that between 30 and 60% have had training. The vast majority, then, either said that fewer than 30% of their employees responsible for communicating with the public

have had any formal communication training (19%) or none have had any training (66%). This finding illustrates the importance of providing communication training for technical staff that ties community relations to their environmental activities and makes communication a part of their performance objectives. (See Tables 81 and 82, Q. VII: 1-2.)

The Public's Response

Having focused thus far on public communication as a proactive function — communications undertaken by industrial facilities on their initiative — this section turns now to look at the external demand for information from industrial facilities. The survey asked a series of questions to determine the extent to which industrial facilities are subject to demands for information from the public, and to what extent, if at all, have those demands changed over the past few years since community right-to-know laws have been in effect? (See Survey Section VI.)

This series of questions began by asking whether there are any objective conditions which might warrant increased public attention. In response, two out of five (42%) of those surveyed said that their facilities have experienced environmental problems or incidents during the past five years that have received public or media attention, and 39% expressed the sentiment that publicity about the substances used in normal production processes at their facility would cause undue community alarm. (See Tables 63 and 64.)

Public Interest. Only 27% said that public or media interest has increased during the past five years. Most (64%) said public interest has stayed the same, and 8% said it has declined. Twenty-one percent said some community or activist group has publicly targeted their facility for perceived environmental problems — but 81% said their facility has been publicly commended by some community or activist group during the past five years. (See Tables 62, 65 and 66.)

Asked to specify the type of public commendation they had received, many respondents cited EPA or other governmental awards. For example, "the EPA Administrator's award for recycling leadership was cited by one facility environmental manager and the EPA Region VI Environmental Excellence Award by another. There were a few citations to environmental groups such as the Sierra Club and Audubon Society. One respondent reached back nearly ten years to cite a Rachel Carson award from the Lake Michigan Foundation. One respondent said the Sierra Club had supported the facility's pilot wetlands project, while another said their efforts to re-use effluent were supported by the local Audubon Society and Conservation League. It seems unlikely that such groups would be supporting these facilities without active outreach by the facility. However, not all 81% represent true environmental groups (some represent governmental authorities), and not all occurred within the previous five years.

Finally, just 17% said that requests for information from the public have increased in recent years, while 73% said the number of such requests has remained the same and 11% said they have decreased. (See Table 67.)

The resurvey of six baseline communities in 1992 confirms the public's apathy for environmental information. Only 17% said they had encouraged businesses to provide information on toxic substances and only 31% said they had encouraged businesses to take a stronger role in cleaning up the community.[21]

Source of Public Inquiries. Respondents were then asked how often during the past year they had received requests from different sources. Emergency responders, cited by 60%, far exceeded all other sources of requests, as Figure 17 illustrates. Most of those (49%) said they have had requests from emergency

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[21] *Op. Cit.*, McCallum and Santos, "Public Knowledge and Attitudes of Chemical Risks in Six Communities," 1993.

responders 1-3 times during the past year, while 8% said they have had such requests 4-8 times and 3% nine or more times. (See Tables 68-74.)

These data suggest that SARA Title III and other activities by Local Emergency Planning Committees and other community groups are increasing levels of communication with regard to emergency response. Yet the public's awareness of emergency plans has not increased, according to the results of the six-community study. This finding suggests that more active communication may be needed. This finding has implications both for the continued implementation of Title III, and perhaps even more significantly, for the implementation of the new Clean Air Act requirement for facilities to develop "worst case" consequence analyses.

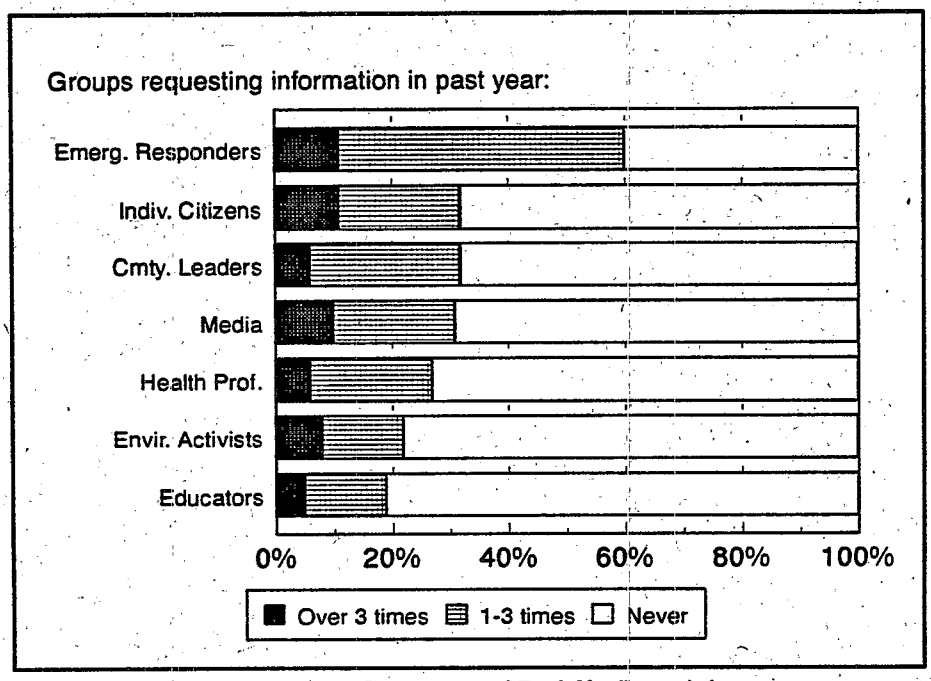

Figure 17: Sources of Public Inquiries

The media, community leaders, and individual citizens were cited by 31-32% as having requested information during the past year and 27% cited health professionals. Just 22% said environmental activists had requested information and 19% cited educators.

Information Requested. The type of information most frequently requested by the public, according to these respondents, is once again general chemical toxicity information such as that found in the MSDS. Yet only 11% of all those surveyed said that the public has requested such information "frequently" over the past five years; 28% said the public seldom requested such information, and 61% said the public had never asked for this type of information. (See Figure 18 and Table 77.)

As for other types of information, emergency response plans were said to be requested "frequently" by 7% of those surveyed, followed by "what to do in an emergency" (5%), SARA Title III reports (3%), reports on facility's efforts to reduce risk to public health or environment (3%) and facility accident/incident history (2%). (See Table 75, 76, 78-80.)

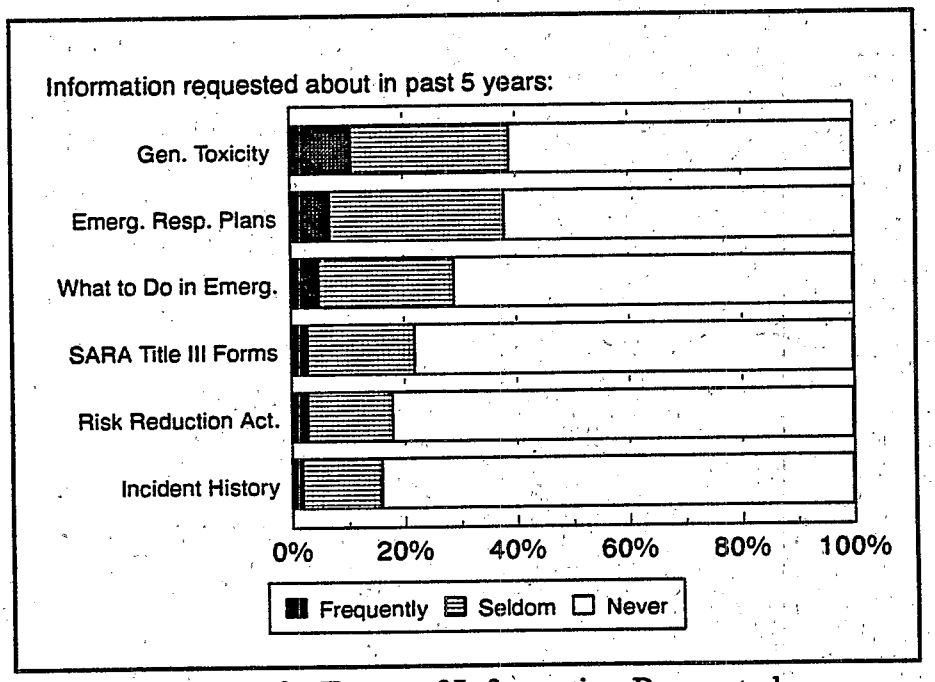

Figure 18: Types of Information Requested

Once again, these findings parallel those of the six-community public opinion survey, which indicates that few citizens were aware of SARA Title III information, even after the law had been

in effect for four years.[22] In community focus groups, however, participants claim that the information they want is what facilities are emitting, the potential health effects and what to do in an emergency. [23]

Summary

Numerous factors covered throughout this survey report would seem to provide more than ample impetus for an active public communication program on the part of these industrial facilities. Community right-to-know requirements certainly provide the foundation (in terms of incentives to explain the information that has to be made public), and most of those surveyed acknowledged that public communication provides good value for what it costs. Focus groups with industry representatives support the good neighbor rationale as an impetus for communication.[24] This is not surprising given that in this survey, three out of five facilities are located within 500 feet of some residential, business, educational, medical or recreational facility, three out of five said their facilities have visible releases or emissions, and two out of five said their facilities have experienced some environmental problem that has received media attention in the past few years.

However, in spite of all these reasons to communicate with the public, only one in three of those surveyed said their facilities have "a program for providing information to the community about plant operations and environmental issues at the facility," and one in three

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[22] *Ibid.*, McCallum and Santos, Six-community Survey, 1993.

[23] Susan L. Santos & David B. McCallum, "Kanawha Valley Health Effects Study," Risk Communication Research Project, Focus Group and Key Interviews Evaluation Report, April 1993.

[24] Susan Santos, focus groups with UNOCAL Corporation, September 1993; Susan L. Santos and David B. McCallum, six focus groups, NASA Langley Research Center, June 1993.

said their personnel responsible for public communication receive any formal training.

Part of the explanation for this seeming lack of public communication efforts may be related to the fact that only one in five said their facilities have staff specifically designated as public affairs staff, thus placing the burden for communication on technical or management staff. While the lack of a public affairs staff and training may indicate communications have been given low priority at some facilities, it is most likely a result of lack of resources at others.

Whatever the reason, in most cases, the plant manager or technical plant staff are carrying out the plant's public communication activities — and most of those individuals have not had any formal training for that communication function. In addition, these same staff carry the responsibility for environmental compliance. The absence of specific criteria or communication objectives as part of a facility's environmental management program fosters the perception that communication efforts may be considered as separate from facility environmental management efforts, or not part of the staff's job function.

The lack of clear communication objectives along with the absence of training suggests that technical staff may feel ill equipped or not organizationally supported to deal with public communication. Proactive public outreach may be perceived as just one more drain on overtaxed and understaffed environmental staffs. In the absence of specific requests or a crisis, and with communication not seen as part of an individual's job responsibilities or of overall strategic planning, it is reasonable to speculate that technical staff may not see the need for active community outreach. Case studies done by other researchers suggest that, in cases where communication by technical staff has worked, there was a tremendous amount of

coordination between those technical staff and public affairs.[25] Organization theory suggests that activities, such as communication, not included as a specific item in a strategic plan will not receive appropriate attention.

The survey found that the presence of a public affairs staff is an important factor in predicting whether or not a facility has a discrete community outreach program for environmental issues. Larger companies are also more likely to engage in community outreach, as are those with visible aspects of production and those that have experienced recent environmental problems that resulted in public or media attention. Further, those that have increased their communication efforts in recent years are more likely than others to have received assistance in public communication, particularly communication training, from their trade associations.

In addition, however, the perception on the part of facility staff that the public is largely apathetic likely plays a major role. Only 17% say the number of requests from the public has increased over the past five years, and as the next chapter shows, industrial facility representatives see the public as largely apathetic to their SARA Title III reports. If the public is not interested, many environmental managers may believe it best not to "stir up" the public in the absence of a controversy.

These findings are consistent with the findings of the Center for Risk Communication's six-community study of public knowledge and attitudes about chemical risks. During the period 1988-1992, there have been some changes in reported activities, such as contributing to environmental causes and drinking bottled water.

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[25] Caron Chess, Alex Saville, Michael Tamuz and Michael R. Greenberg, "The Organizational Links between Risk Communication and Risk Management: The Case of Sybron Chemicals Inc". *Risk Analysis*, Vol. XII, No. 3, 1992, pp. 431-438; Caron Chess, Michal Tamuz and Michael R. Greenberg, "Organizational Learning about Environmental Risk Communication: The Case of Rohm and Haas' Bristol Plant," in press, *Journal of Social and Natural Resources.*

Yet awareness and self-rated knowledge about chemical risks have not increased, and recall of information about the environment from the media and other sources has actually decreased. Respondents who felt positively about environmental activities tended to give better job performance ratings overall.[26]

In summary, lack of public demand for information may make it more difficult to establish communication as a high priority even though plant personnel say they believe it is cost effective. Unless communication is written into individual performance responsibilities or facility environmental plans, and personnel are given appropriate support and resources, including training, communication is likely to receive attention only when the public demands it, usually in response to a crisis. This scenario perpetuates the status quo in focusing community discussions about environmental issues on problems rather than solutions. It also impedes the possibility that government, industry and environmental groups can forge effective partnerships to reduce community risks. In the resurvey of the baseline communities in 1992, the job performance ratings by the respondents for all the responsible parties (e.g., government, industry, LEPCs) were highly correlated. These data suggest that the public is interested in seeing problems solved. When problems are solved, all responsible parties benefit. This provides an incentive for joint problem solving not only to manage risk more effectively but also to enhance public image and reduce the perception of risk.

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[26] *Op. Cit.*., McCallum and Santos, "Public Knowledge and Attitudes of Chemical Risks in Six Communities," 1993.

4. Effects of Environmental Laws

The foregoing chapters of this report have focused on the objective conditions in which industrial facilities find themselves, as well as how and why their pollution reduction and communication activities may have changed over the past five years. The questionnaire was designed to permit an assessment of how SARA Title III and other recent environmental laws rank against a range of other motivations for increasing industry efforts in both these areas.

This chapter turns to the series of questions that specifically asked those surveyed for their own assessment of both the effects and the effectiveness of recent environmental laws, particularly the SARA Title III community right-to-know provisions (Section VIII of the questionnaire). Though the evidence throughout the survey is that these laws have had a great deal of impact on changes in industry practices, the responses to these particular questions were more negative than positive.

Perceived Effects of Environmental Laws and Regulations.

The survey questionnaire (included in Appendix B of this report) provided a list of potential effects of "recent trends in environmental laws" and asked respondents to agree or disagree with each statement. Of all the potential effects cited, the one that was most heartily endorsed by the largest number of respondents was that these laws have increased industry's production costs. (See Figure 19.)

Nine out of ten of those surveyed (91%) agreed that the environmental laws and regulations their facilities have had to respond to over the past several years have increased their production

costs. Half (50%) agreed strongly and 41% agreed somewhat with this statement. (See Table 87.)

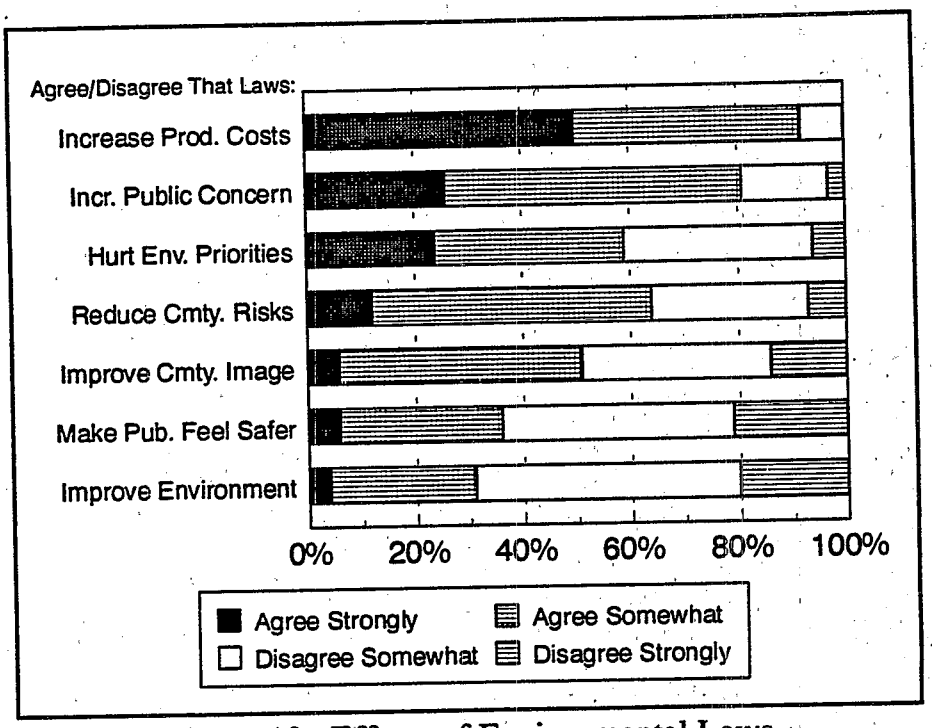

Figure 19: Effects of Environmental Laws

Moreover, eight in ten (81%) agr ed strongly (26%) or somewhat (55%) that these laws and regulations cause needless public concern, and a majority agreed strongly (24%) or somewhat (35%) that they cause more important environmental priorities to be downgraded. (See Tables 85 and 88.)

Sixty-four percent said that these laws have reduced community risks — but only 12% agreed strongly with this statement and 52% just somewhat. Of the 51% who agreed that the laws have improved the facility's community image, only 6% agreed strongly. (See Tables 86 and 90.)

Finally, just 36% agreed (6% strongly) that the laws have made the public feel safer, and 31% agreed (4% strongly) that the new laws and regulations have allowed facilities to improve environmental

protection without hurting their competitive position. (See Tables 84 and 89.)

Industry. The attitudes expressed toward environmental laws in general are quite similar, for the most part, in all three of the industries included in this study. (See Tables 84-90.)

Effectiveness of Specific Environmental Laws.

Respondents were asked to rate the effectiveness of several environmental requirements "taking into consideration both the costs and benefits to your facility of meeting environmental requirements" (Q. VIII: 2). No more than one in five rated any of these laws as "very effective." The Resource Conservation and Recovery Act — RCRA — was rated above all the other laws specified, followed by the Clean Water Act, then the Clean Air Act, and then SARA Title III. The Superfund law (CERCLA) was at the bottom of the list according to these industry representatives. (See Figure 20.)

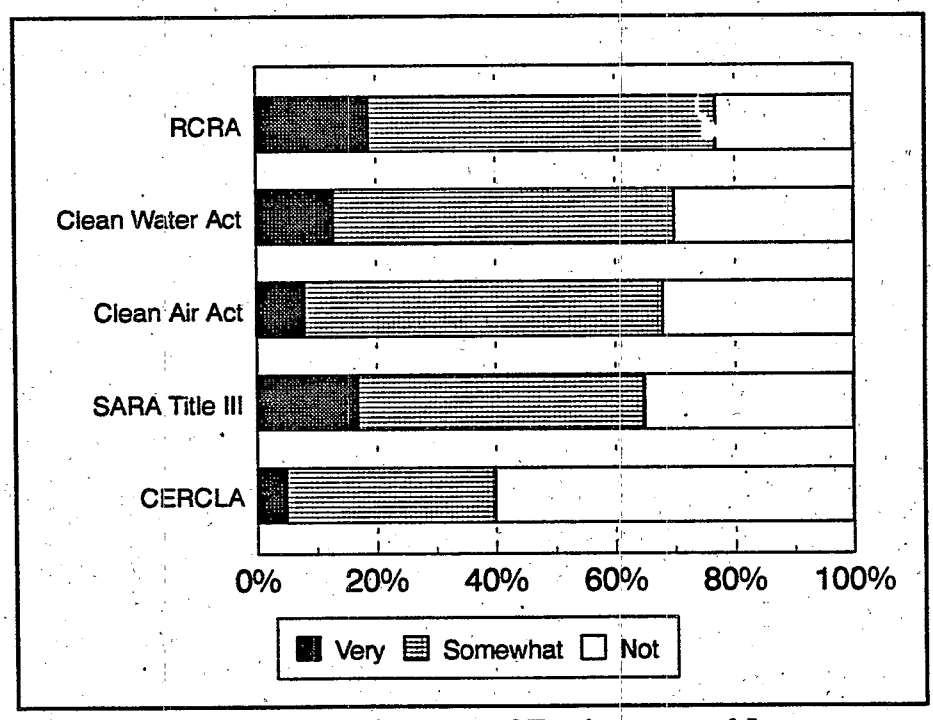

Figure 20: Effectiveness of Environmental Laws

Since CERCLA pertains to the cleanup of abandoned hazardous waste facilities, it may be that CERCLA requirements did not apply to most of the facilities responding to this survey. (Eight respondents – 3% – said their facility had been named as a Superfund site.) However, assuming the facility manager or environmental compliance staff completed the survey would imply some degree of knowledge of most of these statutes.

Nearly eight in ten (77%) said RCRA — the Resource Conservation and Recovery Act — was either "very" (19%) or "somewhat effective" (58%). Seven in ten rated the Clean Water Act either "very" (13%) or "somewhat effective" (57%) as well as the Clean Air Act (8% "very" and 60% "somewhat" effective). Sixty-four percent rated SARA Title III as either "very" (17%) or "somewhat effective" (48%). (See Tables 92-95.)

At the bottom of the list in effectiveness according to this industry audience is the Superfund law (CERCLA). This survey concerned operational facilities, so that the Superfund law regarding hazardous waste facilities was not its primary interest. Though it is indeed possible that some respondents are involved in Superfund issues involving their companies, the survey did not ascertain how many respondents that might be. Nevertheless, just 5% said this law had been "very effective" and another 35% said "somewhat effective." (See Table 91.)

Industry. Once again, attitudes were quite similar throughout all the industries surveyed where these issues are concerned. (See Tables 91-95.)

Public Affairs Staff. On the other hand, respondents in facilities with a local public affairs staff were more likely than others to see CERCLA and the Clean Air Act as being at least somewhat effective. (See Tables 91 and 94.)

Effects of Community Right-to-Know. Finally, all respondents were asked to agree or disagree with a series of statements about the effects of SARA Title III, and in particular Section 313 of the community right-to-know law (Q. VIII: 3). Figure 21 shows responses on this item.

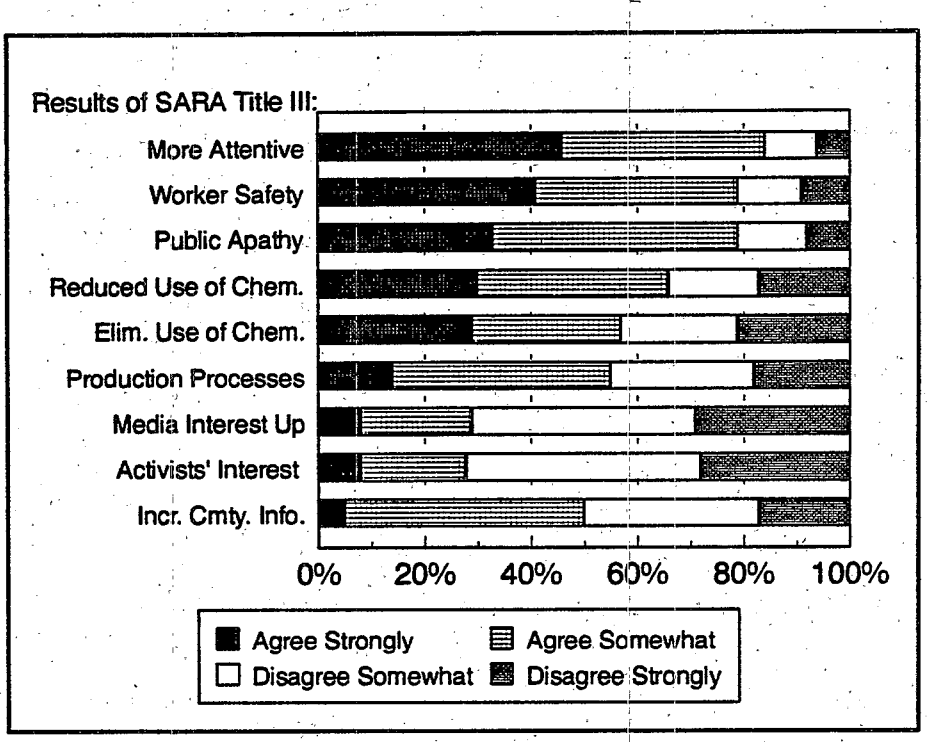

Figure 21: Industry Changes as a Result of Laws

A significant majority reported that their facilities have made changes as a result of these requirements, as Figure 10 illustrates. More than eight in ten (84%) agreed that they pay more attention to the hazardous and toxic substances they use and (78%) agreed that worker safety in handling hazardous substances has become more important. Two out of three (66%) agreed that they have reduced the use of a specific chemical or hazardous substance as a result of these laws, while 55% agreed that they have changed their production processes as a result. (See Tables 97-99 and 101.)

In contrast to the findings noted above, just half (50%) agreed strongly (5%) or somewhat (45%) that their facility had increased its community information activities as a result of these laws.

Under 30% agreed that either media interest or the environmental activists' interest in their facility had increased since the passage of these requirements. (See Tables 96, 102 and 103.)

Moreover, these industry representatives see the public as being basically apathetic in the face of increased community right-to-know requirements. Eight out of ten either strongly (33%) or somewhat (46%) agreed that the public has been generally apathetic about SARA Title III reports. (See Table 104.) Focus groups and surveys of the general public on these issues bear out their assessment. [27]

Industry. There was little difference in reported responses to SARA Title III by industry. (See Tables 96-104.)

Size. Those companies with more than 200 employees were more likely to report having increased their communication activities as a result of SARA Title III, and also to report increased interest in their facilities on the part of the media and environmental activists. (See Tables 96, 102 and 103.)

Public Affairs Staff. Those with public affairs staff were more likely than those without such a staff to say they have increased their community communications and experienced increased attention from the media and environmental activists. (See Tables 96, 102 and 103.)

Increases in Communication Efforts. Those in facilities that have increased their communication activities were also more likely than others to report that their facility had increased its community relations activities and its focus on worker safety and health, and to have received increased attention from the media and environmental activists as a direct result of SARA Title III — but there were no significant differences in the degree to which

[27] Santos & McCallum, public survey, 1993; Santos & McCallum, "Kanawha Valley Health Effects Study," Risk Communication Research Project, Focus Group and Key Interviews Evaluation Report, April 1993.

they reported having reduced or eliminated toxic substances or wastes.

Environmental Problems. Finally, those who said their facilities have experienced high-profile environmental problems were more likely to say they have increased community communications and have been increasingly subject to attention from media and environmental activists because of Title III. (See Tables 96, 102 and 103.)

Costs of Public Communication

Finally, all those surveyed were asked to estimate how much of their facilities' operating budgets were spent on public communications during the past year (Q. VIII: 4). Ninety-six percent said they spent less than 1% of their operating costs on public communications, including 87% estimating the cost at less than 1/2 of one percent. Only 1% of those surveyed said their facilities spent more than 2% of operating costs on public communications, and an additional 2% estimated the cost at from 1-2%. In the absence of specific operating expenses and overall profit information, it is difficult to assess the significance of these amounts.

Summary

In sum, the evidence throughout the survey is that recent environmental legislation has had a great deal of impact on changes in industry practices, in spite of the reluctance of respondents to credit the laws as being effective. Most respondents seem to believe recent environmental laws have cost them more than they are worth, have caused more important environmental priorities to be ignored, and have not made the public feel any safer.

In spite of the above, most respondents report reductions in their hazardous wastes and TRI releases over the past five years, and most cite state and federal regulations as just about as important as employee health and safety as reasons for those reductions.

Moreover, nearly all acknowledge having changed their behavior in response to SARA Title III. However, most of those changes were operational (related to pollution reduction) rather than public outreach or communications oriented.

Though most industry officials surveyed do not tie specific pollution activities to their community relations goals, they do acknowledge the impact of the right-to-know laws on their pollution activities when asked. This is particularly true of those in facilities that have actually increased their communication activities within the past five years. Without information on actual facility risk reduction measures or other indicators of environmental benefit, it is difficult to assess whether the changes reportedly instituted over the past five years are beneficial in reducing pollution and wastes. In the pretest focus group (prior to implementation of this survey), industry representatives suggested that environmental requirements may act as a good motivator, but that many requirements do not result in cost-effective environmental gains.

5. Implications and Recommendations

Over the last five years, the industries represented in this survey have taken a variety of measures designed to reduce either hazardous wastes or TRI releases. Those surveyed cited factors such as employee health as being very important in their pollution prevention or reduction decisions, more so than community perceptions or improving community relations. The survey was designed to assess the impact that SARA Title III and other environmental laws have had on pollution prevention, risk reduction and community outreach. Industry representatives gave repeated evidence that meeting state and environmental requirements is a major reason for the widespread efforts to reduce wastes and toxic releases — but they seemed to see the costs of the legislation as exceeding its environmental benefits.

Virtually all respondents said their facilities have taken a variety of measures designed to reduce hazardous wastes, TRI releases or both. A significant majority said they have managed to reduce their absolute volume of hazardous wastes and TRI releases despite increases in their business volume.

Moreover, nine out of ten ranked meeting environmental standards as one of the top factors (either very important or somewhat important) in their firms' decisions to make reductions in hazardous wastes generated and in TRI releases — equivalent to protecting employee health, and more important than improving community relations.

The purpose of this survey is not to measure reductions in hazardous wastes and TRI releases; EPA has other more precise means of measuring pollution reduction in industry. Rather, this

survey was undertaken to find out why firms engaged in pollution prevention activities, including a close look at the role of the availability of information and the effect that recent environmental laws with community right-to-know provisions have had on those actions.

The questionnaire was designed to assess the relative importance of various factors in industry decisions — both environmental decisions and communication decisions. Company policies on pollution reduction are an important factor in determining what happens at these individual facilities. Most of those responding — typical of those handling community affairs at industrial facilities — have primary responsibilities in the area of environmental safety and health. The survey was in fact targeted to these individuals.

Most firms are not providing routine information about their pollution reduction problems or progress without being asked — but many also said they seldom have inquiries from the general public about these activities. This finding is consistent with the findings of the Center for Risk Communication's 1988 and 1992 six-community study of public knowledge and attitudes about chemical risks. Public awareness, demand for information and self-rated knowledge about chemical risks have not increased.[28]

The fact that nearly all facilities claim to have reduced pollution in some way, and that half have increased their community relations activities in recent years is a powerful statement about the impact of SARA Title III. Though most firms see the public as showing widespread apathy about SARA Title III reports, they also see public information as an important facet of their jobs, along with pollution control. Most do not have a public affairs staff to handle that function for them.

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[28] *Op. Cit.*, McCallum and Santos, "Public Knowledge and Attitudes of Chemical Risks in Six Communities," 1993.

SARA Title III has been accompanied by a wide variety of waste and pollution reduction activities virtually across the board in the three industries surveyed. Some of the reductions cited may be paper or "phantom" reductions, and some may be attributed to incentives other than the legislation. Nevertheless, even industry representatives who are not entirely happy with this legislation give it substantial credit for moving them to action; and some of the other factors they cite, such as improving community relations and improving their own credibility, can be traced indirectly to the new legislative environment.

Moreover, among nearly half those surveyed, communication activities have increased as well, in spite of the fact that most facilities have no public affairs or technically trained staff in risk communication, few have experienced any recent increase in public inquiries and only one third of those surveyed say they have a program for providing information to the community about plant operations and environmental issues. This suggests that the laws are serving as an impetus for communication to some extent.

This survey findings indicate that industry sees the public as largely apathetic about SARA Title III information, and the findings of the six-community survey of the general public suggest that they are correct in that assessment. Given the overall lack of public awareness and general apathy, access to information as a motivational factor may still be an untapped non-regulatory incentive. Clearly, the passive access to industry information alone is not sufficient to engage the public in tapping the information or environmental management potential of Title III. However, concern over the public reaction to information may in fact be an important motivator in furthering company emission reduction and pollution prevention in spite of industry claims that public opinion is not an important motivating factor. This finding suggests that public access to information has the potential to be more of an incentive for pollution reduction than it has been in the past, as well as a more marketable industry attribute.

Passive access to information alone, especially information on chemicals and emissions, may not be meaningful to the public. The general lack of awareness and knowledge experienced by the general public since the passage of Title III suggests that information without some context is not effective, particularly when dealing with people who often find themselves suffering from information overload. However, the answer is not necessarily just more right-to-know. This approach may just add to the paperwork burdens which industry and government so abhors without doing much to educate the public. Attention needs to be focused on the communities' right to understand. This requires active dissemination of information that speaks to issues relevant to the target audiences so as to motivate risk reduction or behavior change.

On the other hand, focus groups and intervention programs within communities experiencing environmental problems suggest that people want and need information on what chemicals are being released, their health effects, and what to do in the event of an emergency. The public wants information on routine and catastrophic risk — not just emissions data.[29] Risk assessment and risk management information, including messages on risk reduction and pollution prevention, may be the most important and appropriate information to communicate. Unfortunately, the results of this survey suggest that in the absence of a crisis or demand for such information, industry does not routinely provide this information to their local publics. Likewise, in the absence of a crisis, most of the public will not attend to information that is not clearly focused on issues that are priorities in their lives.

[29] *Op. Cit.*, Santos and McCallum, Kanawha Valley Study, 1993.

Recommendations

1. **Active community outreach and communication programs will be required to obtain the maximum impact of SARA Title III as an incentive for pollution prevention and risk reduction by industry.**

   There is little evidence that the community right-to-know laws have brought about a substantial increase in public awareness of industry pollution or pollution reduction activities. The dissemination of information by industry or EPA has been primarily passive up to now. However, the possibility remains that a more active program of community information could raise that awareness. The public has to be made aware that community right-to-know information exists and why it is relevant to them, in order to create a demand for it. Access to information is needed to increase awareness and knowledge and to potentially create an environment for behavior change. This would increase the role of the public as a motivational factor for pollution reduction and make pollution prevention a more marketable industry attribute.

2. **Identifying the TRI chemicals or mixtures that pose the greatest risk among those in the TRI list could be an effective way to reduce the cognitive overload for both industry and the public, making it more likely that the public will both attend to and understand the risks.**

   Though EPA efforts to use data generated by the Title III database look at volumes of releases as well as toxicity potential, this information is often not communicated to the public. The apathy and lack of interest on the part of the public may be in part a response to the sheer volume of the information contained in the TRI reports. It is likely that industry has trouble focusing on priorities for the same reason. If the riskiest chemicals (defined by dose and exposure as well as toxicity) could be identified and targeted

sequentially, not only would the communication task be simplified immensely (for both the EPA and industry), but the probability of engaging the public in a meaningful dialogue about risks could be enhanced as well.

3. **Industry should find that it is cost-effective to invest in more communication planning and communication training for technical staff who deal with the public.**

   The survey results demonstrate that most of those who are dealing with the public at these industrial facilities are not trained in communication. While they often rely on their plant manager or corporate communication staff for public relations, most facilities also have technical staff who are called on to explain the facility's production and pollution reduction activities to the public. These technical staff members may not be receiving organizational recognition or support for their communication activities – indeed, most have not received any formal communication training. It is likely that these individuals may also be uncomfortable in the role of communicating with the public on potentially sensitive issues. These conditions are reflected in their lower level of public communication activity. Communication objectives should be made an integral part of technical employees' job responsibilities and environmental management activities. They should be provided with the training and support that would enable them to perform these communication responsibilities effectively, and then rewarded for their efforts. The survey results suggest that separating risk communication from risk or environmental management decisions impedes and reduces communication efforts.

4. **Industry may want to take a more active role in outreach to the community, rather than seeing its communications filtered through the eyes of community leaders, activists and the media.**

Industry views of the public as apathetic may be discouraging efforts at communication. However, in the absence of direct communication from industry, other sources will fill the void. Active dissemination of information on efforts to effectively reduce community risks may also increase credibility. Communication planning and an organizational strategic plan that includes communication as an objective of the facility's environmental management plan may encourage the shift from crisis or passive communication to more proactive communication.

5. **Both EPA and industry should consider the benefits of public opinion research in their efforts to increase awareness and enhance the effectiveness of their communication efforts.**

   Given the lack of public awareness and active two-way communication efforts by industry, more information may be needed to understand the concerns of target audiences. Community surveys can provide a tremendous amount of information about the priorities of a broad cross-section of the community (rather than just those who take the time to become involved), what concerns resident have about the environmental impact of industry, and how aware they are of what industry has done to reduce any adverse environmental impacts on the community. Both community surveys and focus groups can be utilized with great effectiveness to help to formulate and test messages that will help the facility to explain its activities to the public and to provide the public with information that addresses their concerns. With this information, effective communication strategies can be developed. Through communication planning, a variety of activities may be utilized to disseminate those messages to the general public, rather than having them filtered solely through the media or community activists who may have their own messages.

6. **EPA should consider providing smaller facilities with additional support in both their communication efforts and their pollution prevention activities.**

The survey results indicate that smaller facilities are less active than larger ones in pollution reduction and prevention as well as in their communication efforts. This suggests that more effort should be focused on small businesses, both in providing incentives and in helping them to find the necessary resources. Few of these facilities have public affairs staffs, so even if they actively reduce pollution, they may not have the time or the resources to publicize that information. Because of their numbers, these smaller facilities serve as the front-line of industry in communities across the country. Moreover, because they do not have the resources to undertake the kinds of safety and pollution prevention measures taken by larger firms, they may be responsible for a much larger share of public exposure to pollution than their volume would suggest. Thus, even if they are not responsible for the bulk of the total pollution generated by industry, it may be worthwhile to expend some resources in helping them develop their resources for both pollution prevention and public communication.

7. **Additional research is needed to focus on:**

- What organizational factors, if any, may encourage or impede pollution prevention or communication;
- How do the pollution prevention and public communication practices of small firms affect the level of exposure of the public to toxic substances from those firms;
- How does public access to information compare to traditional compliance and enforcement as an incentive to pollution reduction and prevention;
- What are the roles that a public affairs staff and a technical staff play in communications about risk or pollution reduction activities;

- A more complete investigation is needed into the relationship between business activity and pollution prevention; facilities whose business has declined are not as likely to pursue prevention actively as those whose business has increased;
- What effect do visual cues have as an indicator of community interest and communication activities;
- What is the relationship between increasing public anxiety about the environment in general, and the lack of awareness and interest in specific community risk information;
- What kinds of messages and information would engage the public's attention, and through what media; in particular, whether developing messages on pollution prevention efforts decreases perceptions of risk; and
- What is the relative effectiveness of traditional compliance and enforcement provisions compared with public access to information as incentives for pollution reduction and prevention; also, what is the relative effectiveness of requiring active communication and notification and specifying communication channels (as required in the California Air Toxics Hot Spots Bill, AB2588) rather than relying on passive availability of information as in SARA Title III.

In sum, it is apparent from these survey findings (from both the industry and public opinion surveys), that while environmental regulations, including SARA Title III, have brought about widespread *efforts* at pollution reduction, there are questions about both the significance of those reductions in terms of risk reduction or pollution prevention, and the degree to which public information serves as an incentive. If EPA wants to use public information as an incentive for pollution reduction, active and effective communication – communication that takes into consideration accurate information about what a broad cross-section of the public wants and needs to know – will be required both from the EPA and from industry. To date, the potential for information to act as a motivation for encouraging pollution prevention and risk reduction remains relatively untapped.

Appendix A: Bibliography

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Appendix B: Tables

Table 1:
GENERATING MORE OR LESS WASTES IN 1991 THAN 5 YEARS AGO

	More/Less Hazardous Wastes		
	More	Same	Less
Total Sample	16%	20%	64%
INDUSTRY			
Pulp & Paper	10%	21%	69%
Chemical	20%	16%	65%
Refinery/Petro.	13%	31%	56%
# OF EMPLOYEES			
Less than 50	18%	23%	59%
51 to 200	15%	19%	66%
More than 200	13%	13%	75%
BUSINESS CHANGE			
Up	22%	19%	59%
Same	9%	23%	68%
Down	9%	16%	75%
HOMES/BUS./REC			
Within 500 feet	15%	19%	66%
Not Near	16%	20%	65%
VISIBLE POL.			
Yes	12%	22%	66%
No	21%	15%	64%
PUB. ENV. PROB.			
Yes	15%.	23%	62%
No	15%	17%	68%
PUBLIC INTEREST			
Increased	17%	20%	63%
Same	16%	20%	64%
Decreased	5%	16%	79%
PUB. AFF. STAFF			
Yes	15%	17%	68%
No	16%	20%	64%
COMMUNICATIONS			
Increased	14%	17%	69%
Same/Decreased	17%	21%	62%

Sec.I, Q.#1: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 2:
GENERATING MORE OR LESS WASTES PER UNIT
IN 1991 THAN 5 YEARS AGO

	Hazardous Wastes Per Unit		
	More	Same	Less
Total Sample	4%	21%	75%
INDUSTRY			
Pulp & Paper	2%	20%	78%
Chemical	5%	23%	72%
Refinery/Petro.	5%	18%	77%
# OF EMPLOYEES			
Less than 50	6%	26%	68%
51 to 200	3%	23%	74%
More than 200	3%	11%	86%
BUSINESS CHANGE			
Up	2%	18%	80%
Same	2%	21%	77%
Down	11%	26%	63%
HOMES/BUS./REC			
Within 500 feet	4%	19%	78%
Not Near	5%	23%	72%
VISIBLE POL.			
Yes	5%	21%	74%
No	2%	20%	78%
PUB. ENV. PROB.			
Yes	4%	22%	74%
No	4%	20%	76%
PUBLIC INTEREST			
Increased	2%	20%	78%
Same	4%	23%	73%
Decreased	11%	5%	84%
PUB. AFF. STAFF			
Yes	5%	10%	85%
No	4%	24%	72%
COMMUNICATIONS			
Increased	2%	17%	81%
Same/Decreased	6%	24%	70%

Sec.I, Q.#2: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 3:
MORE OR LESS TRI RELEASES IN 1991 THAN 5 YEARS AGO

	More/Less TRI Releases		
	More	Same	Less
Total Sample	15%	27%	59%
INDUSTRY			
Pulp & Paper	17%	21%	62%
Chemical	18%	26%	56%
Refinery/Petro.	3%	36%	62%
# OF EMPLOYEES			
Less than 50	15%	30%	55%
51 to 200	14%	31%	55%
More than 200	14%	17%	69%
BUSINESS CHANGE			
Up	23%	30%	47%
Same	6%	20%	74%
Down	5%	27%	67%
HOMES/BUS./REC			
Within 500 feet	18%	25%	58%
Not Near	9%	32%	60%
VISIBLE POL.			
Yes	14%	28%	58%
No	14%	26%	60%
PUB. ENV. PROB.			
Yes	14%	27%	59%
No	14%	27%	59%
PUBLIC INTEREST			
Increased	10%	27%	63%
Same	16%	29%	54%
Decreased	11%	11%	79%
PUB. AFF. STAFF			
Yes	17%	19%	64%
No	14%	29%	56%
COMMUNICATIONS			
Increased	16%	27%	57%
Same/Decreased	13%	27%	60%

Sec.I, Q.#3: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 4:
MORE OR LESS TRI RELEASES PER UNIT IN 1991 THAN BEFORE

	TRI Releases Per Unit		
	More	Same	Less
Total Sample	1%	32%	67%
INDUSTRY			
Pulp & Paper	0%	28%	72%
Chemical	2%	32%	66%
Refinery/Petro.	0%	36%	64%
# OF EMPLOYEES			
Less than 50	1%	31%	68%
51 to 200	0%	43%	57%
More than 200	3%	19%	78%
BUSINESS CHANGE			
Up	2%	33%	65%
Same	2%	20%	78%
Down	0%	38%	62%
HOMES/BUS./REC			
Within 500 feet	2%	30%	68%
Not Near	0%	35%	65%
VISIBLE POL.			
Yes	1%	31%	68%
No	0%	33%	67%
PUB. ENV. PROB.			
Yes	2%	32%	66%
No	1%	31%	68%
PUBLIC INTEREST			
Increased	0%	25%	75%
Same	2%	35%	63%
Decreased	0%	26%	74%
PUB. AFF. STAFF			
Yes	5%	19%	76%
No	1%	36%	64%
COMMUNICATIONS			
Increased	2%	26%	72%
Same/Decreased	1%	36%	63%

Sec.I, Q.#4: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
. Percentages based on all surveyed respondents.

Table 5:
REDUCTION OF HAZARDOUS WASTES AND TRI RELEASES

	Methods Used to Reduce Wastes & Releases				
	Changed Products	Changed Processes	Changed Materials	House-keeping	Have Not Reduced
Total Sample	25%	58%	65%	77%	4%
INDUSTRY					
Pulp & Paper	12%	56%	85%	65%	6%
Chemical	30%	63%	55%	80%	3%
Refinery/Petro.	27%	46%	70%	86%	5%
# OF EMPLOYEES					
Less than 50	30%	49%	50%	78%	8%
51 to 200	20%	57%	67%	80%	1%
More than 200	21%	74%	84%	74%	3%
BUSINESS CHANGE					
Up	28%	61%	64%	79%	3%
Same	23%	58%	74%	81%	4%
Down	17%	54%	62%	71%	8%
HOMES/BUS./REC					
Within 500 feet	30%	58%	70%	78%	3%
Not Near	14%	60%	58%	76%	6%
VISIBLE POL.					
Yes	21%	61%	67%	77%	5%
No	29%	54%	62%	79%	2%
PUB. ENV. PROB.					
Yes	20%	65%	67%	82%	6%
No	27%	54%	63%	75%	3%
PUBLIC INTEREST					
Increased	22%	72%	72%	88%	2%
Same	25%	56%	61%	74%	4%
Decreased	26%	37%	74%	74%	11%
PUB. AFF. STAFF					
Yes	19%	69%	81%	74%	2%
No	25%	55%	62%	78%	5%
COMMUNICATIONS					
Increased	23%	66%	67%	82%	2%
Same/Decreased	25%	51%	63%	75%	6%

Rows sum to more than 100% due to multiple responses.
Sec.I, Q.#5: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 6:
EMPLOYEE HEALTH AND REDUCTION OF WASTES AND RELEASES

	Employee Health as a Reason			
	Very Important	Somewhat Important	Not Very Important	Not at all Important
Total Sample	68%	24%	6%	2%
INDUSTRY				
Pulp & Paper	67%	27%	6%	0%
Chemical	69%	23%	6%	2%
Refinery/Petro.	68%	24%	5%	3%
# OF EMPLOYEES				
Less than 50	69%	23%	6%	3%
51 to 200	68%	26%	5%	1%
More than 200	65%	27%	6%	2%
BUSINESS CHANGE				
Up	67%	25%	7%	1%
Same	67%	23%	8%	2%
Down	69%	25%	2%	4%
HOMES/BUS./REC				
Within 500 feet	71%	23%	5%	1%
Not Near	61%	28%	8%	4%
VISIBLE POL.				
Yes	64%	27%	7%	1%
No	72%	20%	5%	2%
PUB. ENV. PROB.				
Yes	63%	29%	7%	2%
No	70%	22%	6%	2%
PUBLIC INTEREST				
Increased	59%	31%	10%	0%
Same	72%	22%	4%	2%
Decreased	61%	22%	11%	6%
PUB. AFF. STAFF				
Yes	65%	26%	7%	2%
No	68%	24%	6%	2%
COMMUNICATIONS				
Increased	65%	25%	8%	2%
Same/Decreased	69%	25%	4%	2%

Sec.I, Q.#6: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 7:
REGULATIONS AND REDUCTION OF WASTES AND RELEASES

	Government Regulations as a Reason			
	Very Important	Somewhat Important	Not Very Important	Not at all Important
Total Sample	62%	26%	7%	5%
INDUSTRY				
Pulp & Paper	62%	31%	4%	4%
Chemical	60%	27%	7%	6%
Refinery/Petro.	70%	16%	11%	3%
# OF EMPLOYEES				
Less than 50	59%	31%	5%	5%
51 to 200	66%	20%	11%	3%
More than 200	62%	27%	5%	6%
BUSINESS CHANGE				
Up	61%	27%	8%	4%
Same	58%	30%	6%	6%
Down	70%	21%	6%	4%
HOMES/BUS./REC				
Within 500 feet	64%	26%	7%	3%
Not Near	61%	25%	6%	8%
VISIBLE POL.				
Yes	60%	26%	9%	4%
No	66%	26%	4%	5%
PUB. ENV. PROB.				
Yes	59%	27%	9%	6%
No	65%	25%	6%	4%
PUBLIC INTEREST				
Increased	48%	38%	9%	5%
Same	68%	22%	7%	4%
Decreased	72%	17%	0%	11%
PUB. AFF. STAFF				
Yes	67%	21%	7%	5%
No	62%	27%	7%	5%
COMMUNICATIONS				
Increased	57%	30%	8%	6%
Same/Decreased	68%	23%	6%	3%

Sec.I, Q.#6: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 8:
REDUCING LIABILITY AND REDUCTION OF WASTES AND RELEASES

	Reduce Liability as a Reason			
	Very Important	Somewhat Important	Not Very Important	Not at all Important
Total Sample	54%	33%	11%	2%
INDUSTRY				
Pulp & Paper	55%	32%	11%	2%
Chemical	52%	35%	12%	2%
Refinery/Petro.	59%	30%	8%	3%
# OF EMPLOYEES				
Less than 50	54%	33%	12%	0%
51 to 200	51%	41%	5%	3%
More than 200	56%	25%	16%	3%
BUSINESS CHANGE				
Up	52%	35%	13%	0%
Same	54%	31%	12%	4%
Down	58%	32%	6%	4%
HOMES/BUS./REC				
Within 500 feet	56%	32%	11%	1%
Not Near	49%	36%	11%	4%
VISIBLE POL.				
Yes	55%	33%	10%	2%
No	52%	35%	12%	1%
PUB. ENV. PROB.				
Yes	46%	35%	16%	2%
No	59%	33%	7%	2%
PUBLIC INTEREST				
Increased	52%	40%	7%	2%
Same	54%	32%	14%	1%
Decreased	61%	22%	6%	11%
PUB. AFF. STAFF				
Yes	49%	23%	23%	5%
No	54%	37%	8%	1%
COMMUNICATIONS				
Increased	47%	37%	13%	3%
Same/Decreased	59%	31%	9%	1%

Sec.I, Q.#6: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 9:
REDUCING COMMUNITY RISK AND REDUCTION OF WASTES AND RELEASES

	Reducing Community Risk as a Reason			
	Very Important	Somewhat Important	Not Very Important	Not at all Important
Total Sample	54%	33%	10%	3%
INDUSTRY				
Pulp & Paper	57%	34%	9%	0%
Chemical	56%	30%	11%	3%
Refinery/Petro.	46%	41%	8%	5%
# OF EMPLOYEES				
Less than 50	56%	30%	11%	4%
51 to 200	52%	38%	8%	1%
More than 200	56%	32%	10%	3%
BUSINESS CHANGE				
Up	59%	30%	10%	1%
Same	44%	40%	10%	6%
Down	55%	32%	9%	4%
HOMES/BUS./REC				
Within 500 feet	59%	31%	9%	1%
Not Near	48%	35%	10%	6%
VISIBLE POL.				
Yes	56%	33%	9%	3%
No	54%	33%	11%	2%
PUB. ENV. PROB.				
Yes	55%	34%	9%	2%
No	54%	33%	10%	3%
PUBLIC INTEREST				
Increased	52%	41%	3%	3%
Same	57%	29%	12%	2%
Decreased	44%	39%	11%	6%
PUB. AFF. STAFF				
Yes	60%	26%	9%	5%
No	53%	35%	10%	2%
COMMUNICATIONS				
Increased	58%	33%	6%	4%
Same/Decreased	52%	33%	13%	2%

Sec.I, Q.#6: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 10:
COMPANY POLICY AND REDUCTION OF WASTES AND RELEASES

	Company Policy as a Reason			
	Very Important	Somewhat Important	Not Very Important	Not at all Important
Total Sample	48%	39%	10%	3%
INDUSTRY				
Pulp & Paper	45%	47%	8%	0%
Chemical	48%	37%	12%	3%
Refinery/Petro.	54%	35%	5%	5%
# OF EMPLOYEES				
Less than 50	47%	37%	11%	5%
51 to 200	48%	44%	7%	1%
More than 200	51%	37%	11%	2%
BUSINESS CHANGE				
Up	54%	33%	11%	2%
Same	38%	51%	8%	4%
Down	49%	40%	8%	4%
HOMES/BUS./REC				
Within 500 feet	49%	40%	9%	2%
Not Near	49%	38%	10%	4%
VISIBLE POL.				
Yes	48%	42%	8%	1%
No	49%	34%	12%	5%
PUB. ENV. PROB.				
Yes	47%	37%	11%	4%
No	50%	39%	9%	2%
PUBLIC INTEREST				
Increased	53%	34%	10%	2%
Same	48%	40%	10%	2%
Decreased	44%	44%	0%	11%
PUB. AFF. STAFF				
Yes	56%	30%	12%	2%
No	46%	42%	9%	3%
COMMUNICATIONS				
Increased	53%	37%	9%	2%
Same/Decreased	45%	41%	10%	3%

Sec.I, Q.#6: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 11:
PROFITABILITY AND REDUCTION OF WASTES AND RELEASES

	Profitability as a Reason			
	Very Important	Somewhat Important	Not Very Important	Not at all Important
Total Sample	42%	40%	12%	6%
INDUSTRY				
Pulp & Paper	32%	38%	15%	15%
Chemical	47%	40%	11%	2%
Refinery/Petro.	39%	44%	11%	6%
# OF EMPLOYEES				
Less than 50	50%	35%	13%	3%
51 to 200	39%	46%	9%	5%
More than 200	35%	41%	13%	11%
BUSINESS CHANGE				
Up	41%	44%	10%	5%
Same	41%	33%	18%	8%
Down	45%	40%	9%	6%
HOMES/BUS./REC				
Within 500 feet	40%	41%	13%	6%
Not Near	45%	39%	10%	6%
VISIBLE POL.				
Yes	41%	40%	13%	6%
No	43%	41%	10%	6%
PUB. ENV. PROB.				
Yes	39%	42%	15%	4%
No	43%	40%	10%	6%
PUBLIC INTEREST				
Increased	34%	53%	10%	2%
Same	45%	36%	12%	7%
Decreased	39%	33%	17%	11%
PUB. AFF. STAFF				
Yes	40%	35%	14%	12%
No	42%	42%	12%	5%
COMMUNICATIONS				
Increased	36%	44%	14%	6%
Same/Decreased	48%	37%	9%	6%

Sec.I, Q.#6: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 12:
COMMUNITY RELATIONS AND REDUCTION OF WASTES AND RELEASES

	Improving Community Relations as a Reason			
	Very Important	Somewhat Important	Not Very Important	Not at all Important
Total Sample	36%	38%	20%	6%
INDUSTRY				
Pulp & Paper	34%	40%	23%	4%
Chemical	35%	39%	20%	7%
Refinery/Petro.	41%	32%	19%	8%
# OF EMPLOYEES				
Less than 50	33%	37%	21%	9%
51 to 200	41%	38%	16%	4%
More than 200	35%	38%	22%	5%
BUSINESS CHANGE				
Up	38%	40%	17%	5%
Same	31%	37%	27%	6%
Down	38%	35%	19%	8%
HOMES/BUS./REC				
Within 500 feet	37%	38%	19%	6%
Not Near	34%	39%	20%	6%
VISIBLE POL.				
Yes	39%	36%	22%	2%
No	31%	41%	16%	12%
PUB. ENV. PROB.				
Yes	38%	38%	15%	8%
No	34%	38%	23%	5%
PUBLIC INTEREST				
Increased	41%	36%	21%	2%
Same	32%	40%	20%	8%
Decreased	53%	29%	12%	6%
PUB. AFF. STAFF				
Yes	44%	28%	23%	5%
No	33%	41%	19%	6%
COMMUNICATIONS				
Increased	44%	38%	15%	4%
Same/Decreased	29%	39%	24%	8%

Sec.I, Q.#6: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 13:
PAPERWORK REDUCTION AND REDUCTION OF WASTES AND RELEASES

	Paperwork Reduction as a Reason			
	Very Important	Somewhat Important	Not Very Important	Not at all Important
Total Sample	16%	29%	42%	13%
INDUSTRY				
Pulp & Paper	21%	30%	34%	15%
Chemical	12%	30%	44%	14%
Refinery/Petro.	25%	22%	44%	8%
# OF EMPLOYEES				
Less than 50	21%	32%	40%	7%
51 to 200	12%	23%	51%	14%
More than 200	13%	31%	35%	21%
BUSINESS CHANGE				
Up	16%	30%	41%	13%
Same	15%	27%	48%	10%
Down	17%	27%	38%	17%
HOMES/BUS./REC				
Within 500 feet	17%	31%	39%	13%
Not Near	14%	24%	48%	15%
VISIBLE POL.				
Yes	15%	25%	44%	16%
No	18%	33%	38%	11%
PUB. ENV. PROB.				
Yes	13%	26%	46%	16%
No	18%	29%	40%	12%
PUBLIC INTEREST				
Increased	5%	33%	46%	16%
Same	22%	25%	42%	11%
Decreased	11%	22%	39%	28%
PUB. AFF. STAFF				
Yes	17%	19%	40%	24%
No	14%	31%	43%	12%
COMMUNICATIONS				
Increased	12%	26%	45%	17%
Same/Decreased	20%	30%	40%	10%

Sec.I, Q.#6: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 14:
ELIMINATED ANY HAZARDOUS WASTES COMPLETELY

	Eliminated Any Wastes?	
	Yes	No
Total Sample	53%	47%
INDUSTRY		
Pulp & Paper	51%	49%
Chemical	54%	46%
Refinery/Petro.	51%	49%
# OF EMPLOYEES		
Less than 50	49%	51%
51 to 200	50%	50%
More than 200	60%	40%
BUSINESS CHANGE		
Up	53%	47%
Same	45%	55%
Down	58%	42%
HOMES/BUS./REC		
Within 500 feet	49%	51%
Not Near	59%	41%
VISIBLE POL.		
Yes	50%	50%
No	56%	44%
PUB. ENV. PROB.		
Yes	48%	52%
No	56%	44%
PUBLIC INTEREST		
Increased	60%	40%
Same	48%	52%
Decreased	56%	44%
PUB. AFF. STAFF		
Yes	55%	45%
No	52%	48%
COMMUNICATIONS		
Increased	55%	45%
Same/Decreased	50%	50%

Sec.II, Q.#1: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 15:
ELIMINATED ANY TRI SUBSTANCES COMPLETELY

	Eliminated Any TRIs	
	Yes	No
Total Sample	40%	60%
INDUSTRY		
Pulp & Paper	41%	59%
Chemical	37%	63%
Refinery/Petro.	46%	54%
# OF EMPLOYEES		
Less than 50	35%	65%
51 to 200	36%	64%
More than 200	49%	51%
BUSINESS CHANGE		
Up	40%	60%
Same	37%	63%
Down	40%	60%
HOMES/BUS./REC		
Within 500 feet	35%	65%
Not Near	47%	53%
VISIBLE POL.		
Yes	39%	61%
No	40%	60%
PUB. ENV. PROB.		
Yes	36%	64%
No	43%	57%
PUBLIC INTEREST		
Increased	48%	52%
Same	35%	65%
Decreased	44%	56%
PUB. AFF. STAFF		
Yes	48%	52%
No	37%	63%
COMMUNICATIONS		
Increased	40%	60%
Same/Decreased	39%	61%

Sec.II, Q.#2: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 16:
REASONS FOR ELIMINATING HAZARDOUS WASTES AND TRI RELEASES:
TO REDUCE EMPLOYEE HEALTH RISKS

	To Reduce Health Risks				
	Very Important	Somewhat Important	Not Very Important	Not at all Important	None Elim./ No Answer
Total Sample	35%	18%	5%	6%	37%
INDUSTRY					
Pulp & Paper	39%	20%	7%	2%	31%
Chemical	37%	15%	2%	8%	38%
Refinery/Petro.	23%	23%	10%	5%	40%
# OF EMPLOYEES					
Less than 50	28%	16%	0%	5%	51%
51 to 200	38%	11%	7%	8%	37%
More than 200	40%	26%	9%	6%	18%
BUSINESS CHANGE					
Up	36%	11%	4%	6%	42%
Same	31%	20%	7%	2%	39%
Down	34%	27%	4%	11%	25%
HOMES/BUS./REC					
Within 500 feet	35%	16%	5%	6%	39%
Not Near	35%	19%	5%	7%	34%
VISIBLE POL.					
Yes	35%	18%	6%	6%	35%
No	35%	15%	2%	7%	42%
PUB. ENV. PROB.					
Yes	32%	25%	6%	8%	29%
No	37%	12%	4%	5%	43%
PUBLIC INTEREST					
Increased	42%	27%	3%	5%	23%
Same	32%	13%	6%	6%	43%
Decreased	37%	16%	5%	5%	37%
PUB. AFF. STAFF					
Yes	40%	23%	9%	5%	23%
No	34%	15%	4%	6%	41%
COMMUNICATIONS					
Increased	35%	17%	6%	8%	35%
Same/Decreased	35%	17%	4%	5%	39%

Sec.II, Q.#3: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 17:
REASONS FOR ELIMINATING HAZARDOUS WASTES AND TRI RELEASES:
TO MEET GOVERNMENT REGULATIONS

	To Meet Government Regulations				
	Very Important	Somewhat Important	Not Very Important	Not at all Important	None Elim./ No Answer
Total Sample	29%	17%	10%	8%	36%
INDUSTRY					
Pulp & Paper	30%	22%	9%	7%	31%
Chemical	30%	15%	9%	9%	37%
Refinery/Petro.	28%	15%	10%	8%	40%
# OF EMPLOYEES					
Less than 50	29%	13%	6%	2%	50%
51 to 200	26%	17%	8%	12%	37%
More than 200	34%	20%	15%	12%	18%
BUSINESS CHANGE					
Up	28%	14%	10%	7%	42%
Same	28%	19%	7%	7%	39%
Down	34%	20%	9%	13%	25%
HOMES/BUS./REC					
Within 500 feet	29%	15%	8%	10%	38%
Not Near	31%	18%	12%	6%	34%
VISIBLE POL.					
Yes	30%	17%	10%	9%	35%
No	29%	16%	8%	7%	40%
PUB. ENV. PROB.					
Yes	25%	23%	10%	14%	29%
No	32%	12%	9%	5%	42%
PUBLIC INTEREST					
Increased	28%	23%	10%	15%	23%
Same	29%	14%	10%	5%	43%
Decreased	37%	11%	0%	16%	37%
PUB. AFF. STAFF					
Yes	33%	16%	14%	14%	23%
No	28%	17%	8%	7%	41%
COMMUNICATIONS					
Increased	28%	17%	9%	10%	35%
Same/Decreased	31%	16%	9%	7%	38%

Sec.II, Q.#3: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 18:
REASONS FOR ELIMINATING HAZARDOUS WASTES AND TRI RELEASES:
TO REDUCE LIABILITY

	To Reduce Liability				
	Very Important	Somewhat Important	Not Very Important	Not at all Important	None Elim./ No Answer
Total Sample	27%	23%	8%	6%	36%
INDUSTRY					
Pulp & Paper	26%	31%	6%	6%	31%
Chemical	28%	18%	11%	6%	37%
Refinery/Petro.	25%	28%	3%	5%	40%
# OF EMPLOYEES					
Less than 50	21%	22%	5%	2%	50%
51 to 200	26%	16%	11%	11%	37%
More than 200	35%	31%	9%	6%	18%
BUSINESS CHANGE					
Up	31%	13%	10%	5%	42%
Same	22%	28%	7%	4%	39%
Down	23%	38%	4%	11%	25%
HOMES/BUS./REC					
Within 500 feet	29%	22%	7%	4%	38%
Not Near	22%	25%	9%	9%	34%
VISIBLE POL.					
Yes	29%	22%	9%	6%	35%
No	24%	24%	7%	6%	40%
PUB. ENV. PROB.					
Yes	23%	29%	12%	8%	29%
No	29%	19%	5%	5%	42%
PUBLIC INTEREST					
Increased	33%	28%	8%	7%	23%
Same	23%	21%	8%	5%	43%
Decreased	32%	21%	0%	11%	37%
PUB. AFF. STAFF					
Yes	33%	28%	12%	5%	23%
No	25%	21%	7%	6%	41%
COMMUNICATIONS					
Increased	26%	25%	8%	7%	35%
Same/Decreased	26%	21%	8%	6%	38%

Sec.II, Q.#3: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 19:
REASONS FOR ELIMINATING HAZARDOUS WASTES AND TRI RELEASES:
COMPANY POLICY

	Company Policy				
	Very Important	Somewhat Important	Not Very Important	Not at all Important	None Elim./ No Answer
Total Sample	28%	22%	9%	5%	36%
INDUSTRY					
Pulp & Paper	28%	33%	7%	0%	31%
Chemical	31%	16%	9%	8%	36%
Refinery/Petro.	18%	28%	10%	5%	40%
# OF EMPLOYEES					
Less than 50	21%	19%	6%	6%	49%
51 to 200	29%	20%	7%	8%	37%
More than 200	37%	28%	14%	3%	18%
BUSINESS CHANGE					
Up	31%	14%	8%	4%	42%
Same	28%	26%	6%	4%	37%
Down	21%	32%	11%	11%	25%
HOMES/BUS./REC					
Within 500 feet	26%	21%	10%	6%	38%
Not Near	32%	24%	6%	6%	33%
VISIBLE POL.					
Yes	27%	24%	9%	6%	34%
No	28%	19%	7%	6%	40%
PUB. ENV. PROB					
Yes	27%	23%	13%	9%	29%
No	28%	21%	5%	4%	41%
PUBLIC INTEREST					
Increased	33%	30%	10%	5%	22%
Same	24%	20%	8%	6%	43%
Decreased	37%	11%	5%	11%	37%
PUB. AFF. STAFF					
Yes	42%	19%	12%	5%	23%
No	24%	22%	7%	6%	40%
COMMUNICATIONS					
Increased	33%	23%	6%	5%	34%
Same/Decreased	23%	21%	11%	7%	38%

Sec.II, Q.#3: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 20:
REASONS FOR ELIMINATING HAZARDOUS WASTES AND TRI RELEASES:
TO REDUCE TREATMENT COSTS

	To Reduce Treatment Costs				
	Very Important	Somewhat Important	Not Very Important	Not at all Important	None Elim./ No Answer
Total Sample	13%	20%	13%	18%	37%
INDUSTRY					
Pulp & Paper	13%	20%	19%	17%	31%
Chemical	13%	21%	9%	18%	38%
Refinery/Petro.	13%	15%	15%	18%	40%
# OF EMPLOYEES					
Less than 50	15%	9%	12%	14%	50%
51 to 200	11%	24%	9%	18%	38%
More than 200	12%	29%	17%	23%	18%
BUSINESS CHANGE					
Up	11%	18%	13%	16%	42%
Same	15%	22%	11%	13%	39%
Down	14%	21%	13%	27%	25%
HOMES/BUS./REC					
Within 500 feet	13%	20%	12%	17%	39%
Not Near	13%	20%	13%	20%	34%
VISIBLE POL.					
Yes	12%	22%	14%	17%	35%
No	15%	18%	9%	18%	40%
PUB. ENV. PROB.					
Yes	16%	23%	13%	18%	30%
No	11%	18%	12%	17%	42%
PUBLIC INTEREST					
Increased	18%	30%	12%	17%	23%
Same	9%	17%	13%	17%	43%
Decreased	26%	5%	11%	21%	37%
PUB. AFF. STAFF					
Yes	12%	23%	16%	26%	23%
No	13%	19%	11%	16%	41%
COMMUNICATIONS					
Increased	11%	24%	13%	17%	35%
Same/Decreased	14%	17%	11%	19%	39%

Sec.II, Q.#3: A Study of Industry Response to SARA Title III
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Percentages based on all surveyed respondents.

Table 21:
REASONS FOR ELIMINATING HAZARDOUS WASTES AND TRI RELEASES:
TO IMPROVE COMMUNITY RELATIONS

	To Improve Community Relations				
	Very Important	Somewhat Important	Not Very Important	Not at all Important	None Elim./ No Answer
Total Sample	16%	26%	12%	10%	37%
INDUSTRY					
Pulp & Paper	6%	35%	20%	7%	31%
Chemical	19%	23%	9%	11%	38%
Refinery/Petro.	20%	25%	8%	8%	40%
# OF EMPLOYEES					
Less than 50	14%	20%	7%	9%	50%
51 to 200	16%	25%	11%	11%	38%
More than 200	20%	34%	18%	9%	18%
BUSINESS CHANGE					
Up	18%	24%	9%	7%	42%
Same	19%	24%	15%	4%	39%
Down	11%	30%	13%	21%	25%
HOMES/BUS./REC					
Within 500 feet	17%	25%	11%	8%	39%
Not Near	15%	26%	12%	13%	34%
VISIBLE POL.					
Yes	17%	26%	14%	7%	35%
No	16%	25%	6%	13%	40%
PUB. ENV. PROB.					
Yes	17%	31%	13%	9%	30%
No	16%	21%	11%	10%	42%
PUBLIC INTEREST					
Increased	25%	35%	12%	5%	23%
Same	12%	22%	13%	10%	43%
Decreased	26%	21%	0%	16%	37%
PUB. AFF. STAFF					
Yes	21%	30%	19%	7%	23%
No	15%	24%	9%	11%	41%
COMMUNICATIONS					
Increased	19%	28%	9%	8%	35%
Same/Decreased	14%	23%	13%	11%	39%

Sec.II, Q.#3: A Study of Industry Response to SARA Title III
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Percentages based on all surveyed respondents.

Table 22:
REASONS FOR ELIMINATING HAZARDOUS WASTES AND TRI RELEASES:
TO REDUCE PAPER WORK

	To Reduce Paper Work				
	Very Important	Somewhat Important	Not Very Important	Not at all Important	None Elim./ No Answer
Total Sample	7%	19%	22%	15%	38%
INDUSTRY					
Pulp & Paper	6%	20%	28%	13%	33%
Chemical	8%	18%	21%	15%	38%
Refinery/Petro.	8%	18%	15%	18%	43%
# OF EMPLOYEES					
Less than 50	12%	16%	14%	8%	50%
51 to 200	4%	16%	25%	17%	38%
More than 200	5%	23%	29%	22%	22%
BUSINESS CHANGE					
Up	6%	19%	18%	15%	42%
Same	9%	9%	33%	9%	39%
Down	7%	25%	20%	20%	29%
HOMES/BUS./REC					
Within 500 feet	8%	17%	21%	15%	40%
Not Near	5%	20%	25%	15%	35%
VISIBLE POL.					
Yes	4%	17%	26%	17%	37%
No	11%	20%	17%	11%	40%
PUB. ENV. PROB.					
Yes	6%	18%	25%	19%	31%
No	8%	18%	21%	11%	43%
PUBLIC INTEREST					
Increased	2%	27%	28%	18%	25%
Same	8%	13%	22%	13%	44%
Decreased	16%	26%	5%	16%	37%
PUB. AFF. STAFF					
Yes	5%	16%	23%	28%	28%
No	7%	18%	22%	12%	41%
COMMUNICATIONS					
Increased	6%	17%	24%	17%	37%
Same/Decreased	7%	19%	21%	13%	39%

Sec.II, Q.#3: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 23:
REASONS FOR ELIMINATING HAZARDOUS WASTES AND TRI RELEASES:
USING DIFFERENT FORMULA

	Using a Different Formula				
	Very Important	Somewhat Important	Not Very Important	Not at all Important	None Elim./ No Answer
Total Sample	21%	10%	5%	26%	38%
INDUSTRY					
Pulp & Paper	22%	13%	7%	26%	31%
Chemical	24%	9%	5%	24%	39%
Refinery/Petro.	10%	8%	5%	35%	43%
# OF EMPLOYEES					
Less than 50	22%	5%	2%	17%	53%
51 to 200	21%	13%	7%	22%	37%
More than 200	17%	11%	9%	43%	20%
BUSINESS CHANGE					
Up	21%	8%	6%	21%	43%
Same	22%	11%	6%	20%	41%
Down	16%	9%	5%	43%	27%
HOMES/BUS./REC					
Within 500 feet	18%	11%	6%	26%	40%
Not Near	24%	6%	7%	27%	36%
VISIBLE POL.					
Yes	20%	7%	9%	29%	35%
No	20%	12%	2%	21%	44%
PUB. ENV. PROB.					
Yes	18%	8%	9%	34%	31%
No	22%	11%	4%	20%	44%
PUBLIC INTEREST					
Increased	18%	12%	10%	35%	25%
Same	22%	9%	5%	19%	45%
Decreased	11%	5%	0%	47%	37%
PUB. AFF. STAFF					
Yes	12%	5%	7%	51%	26%
No	22%	10%	6%	21%	42%
COMMUNICATIONS					
Increased	16%	7%	8%	33%	36%
Same/Decreased	23%	12%	4%	21%	40%

Sec.II, Q.#3: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 24:
REASONS FOR ELIMINATING HAZARDOUS WASTES AND TRI RELEASES:
DROPPED PRODUCTS

	Dropped Product				
	Very Important	Somewhat Important	Not Very Important	Not at all Important	None Elim./ No Answer
Total Sample	17%	7%	7%	32%	37%
INDUSTRY					
Pulp & Paper	4%	2%	4%	56%	35%
Chemical	24%	8%	8%	24%	37%
Refinery/Petro.	13%	13%	8%	28%	40%
# OF EMPLOYEES					
Less than 50	21%	8%	7%	15%	49%
51 to 200	17%	9%	7%	26%	41%
More than 200	11%	3%	6%	62%	18%
BUSINESS CHANGE					
Up	14%	7%	6%	30%	44%
Same	9%	9%	7%	33%	41%
Down	30%	5%	7%	36%	21%
HOMES/BUS./REC					
Within 500 feet	19%	10%	6%	25%	40%
Not Near	13%	2%	8%	44%	33%
VISIBLE POL.					
Yes	13%	7%	8%	35%	37%
No	21%	7%	6%	27%	39%
PUB. ENV. PROB.					
Yes	19%	6%	9%	35%	30%
No	15%	8%	6%	28%	43%
PUBLIC INTEREST					
Increased	18%	12%	8%	40%	22%
Same	14%	6%	8%	27%	45%
Decreased	32%	5%	0%	37%	26%
PUB. AFF. STAFF					
Yes	12%	5%	5%	56%	23%
No	17%	8%	7%	26%	42%
COMMUNICATIONS					
Increased	13%	6%	8%	37%	36%
Same/Decreased	20%	8%	5%	28%	39%

Sec.II, Q.#3: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 25:
REASONS FOR NOT ELIMINATING HAZARDOUS WASTES AND TRI RELEASES:
NO SUBSTITUTES AVAILABLE

	No Substitutes Available			
	Very Important	Somewhat Important	Not Very Important	Not at all Important
Total Sample	70%	23%	5%	2%
INDUSTRY				
Pulp & Paper	77%	15%	4%	4%
Chemical	69%	26%	4%	1%
Refinery/Petro.	58%	28%	8%	6%
# OF EMPLOYEES				
Less than 50	72%	21%	5%	3%
51 to 200	77%	18%	4%	1%
More than 200	60%	32%	5%	3%
BUSINESS CHANGE				
Up	69%	23%	4%	4%
Same	61%	31%	8%	0%
Down	81%	15%	4%	0%
HOMES/BUS./REC				
Within 500 feet	69%	24%	5%	2%
Not Near	71%	21%	5%	3%
VISIBLE POL.				
Yes	69%	24%	5%	2%
No	70%	22%	6%	2%
PUB. ENV. PROB.				
Yes	70%	24%	4%	2%
No	69%	23%	6%	2%
PUBLIC INTEREST				
Increased	61%	29%	8%	2%
Same	73%	21%	4%	1%
Decreased	75%	19%	0%	6%
PUB. AFF. STAFF				
Yes	62%	29%	5%	5%
No	72%	21%	5%	2%
COMMUNICATIONS				
Increased	62%	32%	4%	2%
Same/Decreased	76%	15%	6%	3%

Sec.II, Q.#4: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 26:
REASONS FOR NOT ELIMINATING HAZARDOUS WASTES AND TRI RELEASES:
SUBSTITUTES TOO COSTLY

	Substitutes too Costly			
	Very Important	Somewhat Important	Not Very Important	Not at all Important
Total Sample	24%	40%	24%	12%
INDUSTRY				
Pulp & Paper	17%	42%	29%	12%
Chemical	26%	42%	23%	10%
Refinery/Petro.	29%	31%	23%	17%
# OF EMPLOYEES				
Less than 50	29%	35%	21%	15%
51 to 200	20%	43%	29%	9%
More than 200	22%	44%	25%	9%
BUSINESS CHANGE				
Up	23%	33%	28%	15%
Same	26%	44%	26%	4%
Down	24%	51%	16%	10%
HOMES/BUS./REC				
Within 500 feet	27%	38%	27%	9%
Not Near	19%	44%	22%	15%
VISIBLE POL.				
Yes	26%	41%	23%	10%
No	21%	39%	26%	14%
PUB. ENV. PROB.				
Yes	26%	39%	27%	8%
No	22%	40%	24%	13%
PUBLIC INTEREST				
Increased	28%	36%	28%	9%
Same	22%	42%	24%	12%
Decreased	25%	31%	31%	13%
PUB. AFF. STAFF				
Yes	29%	39%	22%	10%
No	23%	40%	26%	11%
COMMUNICATIONS				
Increased	23%	42%	29%	6%
Same/Decreased	25%	38%	21%	16%

Sec.II, Q.#4: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 27:
REASONS FOR NOT ELIMINATING HAZARDOUS WASTES AND TRI RELEASES:
PRODUCT QUALITY MAY SUFFER

	Product Quality may Suffer			
	Very Important	Somewhat Important	Not Very Important	Not at all Important
Total Sample	50%	29%	10%	11%
INDUSTRY				
Pulp & Paper	53%	26%	8%	13%
Chemical	52%	31%	9%	7%
Refinery/Petro.	39%	22%	19%	19%
# OF EMPLOYEES				
Less than 50	53%	33%	10%	4%
51 to 200	53%	28%	8%	11%
More than 200	43%	25%	14%	18%
BUSINESS CHANGE				
Up	53%	24%	12%	11%
Same	36%	38%	14%	12%
Down	57%	31%	4%	8%
HOMES/BUS./REC				
Within 500 feet	53%	26%	10%	11%
Not Near	45%	34%	11%	10%
VISIBLE POL.				
Yes	52%	27%	10%	10%
No	47%	31%	11%	11%
PUB. ENV. PROB.				
Yes	51%	29%	12%	8%
No	50%	28%	10%	12%
PUBLIC INTEREST				
Increased	47%	29%	15%	8%
Same	52%	28%	7%	12%
Decreased	41%	29%	24%	6%
PUB. AFF. STAFF				
Yes	45%	24%	14%	17%
No	52%	29%	10%	9%
COMMUNICATIONS				
Increased	50%	27%	15%	9%
Same/Decreased	51%	29%	7%	13%

Sec.II, Q.#4: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 28
REASONS FOR NOT ELIMINATING HAZARDOUS WASTES AND TRI RELEASES:
FEAR OTHERS' METHODS WON'T WORK HERE

	Fear Others' Methods Won't Work Here			
	Very Important	Somewhat Important	Not Very Important	Not at all Important
Total Sample	15%	33%	34%	19%
INDUSTRY				
Pulp & Paper	15%	35%	27%	23%
Chemical	15%	28%	39%	18%
Refinery/Petro.	11%	46%	26%	17%
# OF EMPLOYEES				
Less than 50	13%	35%	37%	15%
51 to 200	17%	31%	34%	17%
More than 200	14%	32%	28%	26%
BUSINESS CHANGE				
Up	14%	33%	37%	16%
Same	10%	34%	34%	22%
Down	22%	32%	24%	22%
HOMES/BUS./REC				
Within 500 feet	17%	39%	32%	12%
Not Near	13%	22%	35%	31%
VISIBLE POL.				
Yes	17%	37%	27%	19%
No	13%	27%	42%	19%
PUB. ENV. PROB.				
Yes	14%	34%	38%	14%
No	16%	33%	30%	22%
PUBLIC INTEREST				
Increased	12%	40%	32%	16%
Same	17%	30%	33%	20%
Decreased	13%	38%	38%	13%
PUB. AFF. STAFF				
Yes	21%	26%	24%	29%
No	14%	33%	36%	17%
COMMUNICATIONS				
Increased	16%	32%	37%	16%
Same/Decreased	15%	34%	29%	22%

Sec.II, Q.#4: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 29:
REASONS FOR NOT ELIMINATING HAZARDOUS WASTES AND TRI RELEASES:
SAVINGS TOO SMALL

	Savings too Small			
	Very Important	Somewhat Important	Not Very Important	Not at all Important
Total Sample	12%	39%	31%	18%
INDUSTRY				
Pulp & Paper	15%	31%	37%	17%
Chemical	8%	43%	30%	19%
Refinery/Petro.	19%	39%	25%	17%
# OF EMPLOYEES				
Less than 50	8%	38%	29%	24%
51 to 200	10%	41%	37%	13%
More than 200	18%	37%	26%	18%
BUSINESS CHANGE				
Up	9%	39%	35%	17%
Same	14%	43%	22%	22%
Down	16%	33%	31%	20%
HOMES/BUS./REC				
Within 500 feet	12%	39%	32%	17%
Not Near	10%	38%	29%	22%
VISIBLE POL.				
Yes	16%	40%	31%	14%
No	5%	37%	31%	27%
PUB. ENV. PROB.				
Yes	18%	39%	33%	10%
No	7%	39%	30%	24%
PUBLIC INTEREST				
Increased	12%	51%	22%	15%
Same	10%	35%	34%	21%
Decreased	19%	31%	44%	6%
PUB. AFF. STAFF				
Yes	14%	50%	26%	10%
No	11%	36%	32%	21%
COMMUNICATIONS				
Increased	12%	41%	30%	17%
Same/Decreased	12%	37%	32%	20%

Sec.II, Q.#4: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 30:
REASONS FOR NOT ELIMINATING HAZARDOUS WASTES AND TRI RELEASES:
WAITING TO RETIRE EXISTING EQUIPMENT

	Waiting to Retire Existing Equipment			
	Very Important	Somewhat Important	Not Very Important	Not at all Important
Total Sample	3%	19%	36%	42%
INDUSTRY				
Pulp & Paper	6%	22%	29%	43%
Chemical	3%	16%	40%	41%
Refinery/Petro.	0%	28%	31%	42%
# OF EMPLOYEES				
Less than 50	3%	13%	35%	50%
51 to 200	1%	17%	44%	38%
More than 200	6%	30%	27%	38%
BUSINESS CHANGE				
Up	2%	12%	44%	43%
Same	6%	27%	27%	39%
Down	4%	28%	24%	44%
HOMES/BUS./REC				
Within 500 feet	3%	20%	36%	41%
Not Near	4%	19%	34%	44%
VISIBLE POL.				
Yes	4%	23%	37%	37%
No	3%	14%	32%	52%
PUB. ENV. PROB.				
Yes	1%	25%	38%	36%
No	5%	16%	34%	46%
PUBLIC INTEREST				
Increased	3%	29%	36%	32%
Same	4%	17%	33%	46%
Decreased	0%	6%	56%	38%
PUB. AFF. STAFF				
Yes	2%	32%	29%	37%
No	4%	16%	38%	43%
COMMUNICATIONS				
Increased	4%	27%	38%	31%
Same/Decreased	3%	12%	33%	52%

Sec.II, Q.#4: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 31:
REDUCE CHANCE OF SPILLS BY ADDING CONTAINMENT MEASURES

	New Containment Measures		
	Yes	No-Don't Need Any	No-Already Adequate
Total Sample	78%	5%	17%
INDUSTRY			
Pulp & Paper	78%	4%	19%
Chemical	81%	6%	13%
Refinery/Petro.	71%	3%	26%
# OF EMPLOYEES			
Less than 50	77%	7%	16%
51 to 200	77%	4%	19%
More than 200	83%	2%	15%
BUSINESS CHANGE			
Up	75%	6%	19%
Same	83%	0%	17%
Down	83%	6%	11%
HOMES/BUS./REC			
Within 500 feet	82%	5%	13%
Not Near	75%	4%	21%
VISIBLE POL.			
Yes	82%	1%	16%
No	74%	9%	17%
PUB. ENV. PROB.			
Yes	82%	2%	15%
No	76%	6%	18%
PUBLIC INTEREST			
Increased	82%	3%	15%
Same	79%	3%	19%
Decreased	74%	16%	11%
PUB. AFF. STAFF			
Yes	88%	0%	12%
No	76%	6%	18%
COMMUNICATIONS			
Increased	81%	2%	17%
Same/Decreased	77%	7%	16%

Sec.IV, Q.#1: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 32:
REDUCE CHANCE OF SPILLS BY ADDING MONITORING DEVICES

	New Monitoring Devices		
	Yes	No - No Need	No - Adequate
Total Sample	29%	63%	9%
INDUSTRY			
Pulp & Paper	26%	67%	7%
Chemical	27%	65%	8%
Refinery/Petro.	39%	47%	13%
# OF EMPLOYEES			
Less than 50	23%	72%	5%
51 to 200	19%	72%	9%
More than 200	45%	43%	12%
BUSINESS CHANGE			
Up	27%	65%	9%
Same	25%	67%	8%
Down	33%	57%	9%
HOMES/BUS./REC			
Within 500 feet	30%	62%	7%
Not Near	24%	65%	11%
VISIBLE POL.			
Yes	34%	57%	10%
No	19%	74%	7%
PUB. ENV. PROB.			
Yes	33%	56%	11%
No	25%	69%	6%
PUBLIC INTEREST			
Increased	41%	52%	7%
Same	22%	68%	10%
Decreased	37%	63%	0%
PUB. AFF. STAFF			
Yes	55%	33%	12%
No	22%	70%	8%
COMMUNICATIONS			
Increased	38%	53%	10%
Same/Decreased	20%	72%	8%

Sec.IV, Q.#2: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 33:
REDUCE CHANCE OF SPILLS BY ADDING PROCESS CONTROLS

	New Process Controls	
	Yes	No
Total Sample	70%	30%
INDUSTRY		
Pulp & Paper	70%	30%
Chemical	72%	28%
Refinery/Petro.	63%	37%
# OF EMPLOYEES		
Less than 50	63%	37%
51 to 200	70%	30%
More than 200	78%	22%
BUSINESS CHANGE		
Up	71%	29%
Same	67%	33%
Down	69%	31%
HOMES/BUS./REC		
Within 500 feet	71%	29%
Not Near	67%	33%
VISIBLE POL.		
Yes	75%	25%
No	61%	39%
PUB. ENV. PROB.		
Yes	76%	24%
No	65%	35%
PUBLIC INTEREST		
Increased	73%	27%
Same	68%	32%
Decreased	68%	32%
PUB. AFF. STAFF		
Yes	81%	19%
No	67%	33%
COMMUNICATIONS		
Increased	79%	21%
Same/Decreased	62%	38%

Sec.IV, Q.#3: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 34:
REDUCE CHANCE OF SPILLS BY REDUCING AMOUNT OF CHEMICALS

	Reduced Stored Chemicals	
	Yes	No
Total Sample	56%	44%
INDUSTRY		
Pulp & Paper	52%	48%
Chemical	60%	40%
Refinery/Petro.	49%	51%
# OF EMPLOYEES		
Less than 50	54%	46%
51 to 200	61%	39%
More than 200	55%	45%
BUSINESS CHANGE		
Up	54%	46%
Same	58%	42%
Down	61%	39%
HOMES/BUS./REC		
Within 500 feet	62%	38%
Not Near	49%	51%
VISIBLE POL.		
Yes	56%	44%
No	59%	41%
PUB. ENV. PROB.		
Yes	60%	40%
No	56%	44%
PUBLIC INTEREST		
Increased	67%	33%
Same	54%	46%
Decreased	58%	42%
PUB. AFF. STAFF		
Yes	47%	53%
No	59%	41%
COMMUNICATIONS		
Increased	58%	42%
Same/Decreased	56%	44%

Sec.IV, Q.#4: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 35:
STATEMENTS ON TOXIC AND HAZARDOUS SUBSTANCE MANAGEMENT

	If Reduce Now, May Increase Future Requirements			
	Agree Strongly	Agree Somewhat	Disagree Somewhat	Disagree Strongly
Total Sample	10%	48%	26%	16%
INDUSTRY				
Pulp & Paper	11%	50%	28%	11%
Chemical	10%	46%	25%	18%
Refinery/Petro.	5%	53%	28%	15%
# OF EMPLOYEES				
Less than 50	7%	52%	29%	12%
51 to 200	7%	46%	25%	22%
More than 200	17%	46%	25%	12%
BUSINESS CHANGE				
Up	11%	42%	29%	19%
Same	8%	53%	26%	13%
Down	9%	60%	20%	11%
HOMES/BUS./REC				
Within 500 feet	10%	48%	30%	12%
Not Near	8%	50%	20%	21%
VISIBLE POL.				
Yes	10%	49%	28%	13%
No	9%	47%	24%	20%
PUB. ENV. PROB.				
Yes	11%	45%	27%	17%
No	9%	50%	26%	15%
PUBLIC INTEREST				
Increased	12%	45%	30%	13%
Same	10%	48%	26%	16%
Decreased	5%	53%	21%	21%
PUB. AFF. STAFF				
Yes	16%	51%	26%	7%
No	8%	47%	26%	18%
COMMUNICATIONS				
Increased	8%	53%	23%	16%
Same/Decreased	11%	45%	30%	15%

Sec.IV, Q.#5: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 36:
STATEMENTS ON TOXIC AND HAZARDOUS SUBSTANCE MANAGEMENT

	Treat Some Non-Hazardous Materials as Hazardous			
	Agree Strongly	Agree Somewhat	Disagree Somewhat	Disagree Strongly
Total Sample	27%	45%	14%	14%
INDUSTRY				
Pulp & Paper	23%	51%	17%	9%
Chemical	30%	45%	9%	16%
Refinery/Petro.	25%	35%	28%	13%
# OF EMPLOYEES				
Less than 50	29%	43%	12%	17%
51 to 200	27%	41%	20%	12%
More than 200	26%	52%	11%	11%
BUSINESS CHANGE				
Up	24%	47%	14%	15%
Same	33%	44%	13%	10%
Down	29%	42%	15%	15%
HOMES/BUS./REC				
Within 500 feet	28%	42%	15%	14%
Not Near	26%	49%	12%	13%
VISIBLE POL.				
Yes	27%	48%	17%	8%
No	29%	39%	9%	23%
PUB. ENV. PROB.				
Yes	32%	42%	18%	8%
No	24%	47%	11%	18%
PUBLIC INTEREST				
Increased	35%	37%	23%	5%
Same	24%	50%	11%	15%
Decreased	32%	42%	5%	21%
PUB. AFF. STAFF				
Yes	23%	58%	12%	7%
No	29%	42%	15%	15%
COMMUNICATIONS				
Increased	31%	48%	11%	10%
Same/Decreased	24%	42%	17%	17%

Sec.IV, Q.#5: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 37:
STATEMENTS ON TOXIC AND HAZARDOUS SUBSTANCE MANAGEMENT

	Management Won't Innovate unless Required			
	Agree Strongly	Agree Somewhat	Disagree Somewhat	Disagree Strongly
Total Sample	8%	25%	33%	35%
INDUSTRY				
Pulp & Paper	4%	31%	37%	28%
Chemical	6%	24%	33%	37%
Refinery/Petro.	20%	18%	28%	35%
# OF EMPLOYEES				
Less than 50	11%	24%	29%	37%
51 to 200	5%	29%	37%	29%
More than 200	8%	22%	34%	37%
BUSINESS CHANGE				
Up	5%	26%	32%	36%
Same	15%	25%	30%	30%
Down	7%	22%	38%	33%
HOMES/BUS./REC				
Within 500 feet	8%	28%	33%	31%
Not Near	7%	19%	35%	39%
VISIBLE POL.				
Yes	11%	27%	27%	35%
No	3%	21%	44%	32%
PUB. ENV. PROB.				
Yes	11%	22%	37%	31%
No	5%	26%	32%	37%
PUBLIC INTEREST				
Increased	8%	22%	30%	40%
Same	6%	24%	38%	32%
Decreased	16%	32%	11%	42%
PUB. AFF. STAFF				
Yes	2%	28%	33%	37%
No	9%	25%	34%	33%
COMMUNICATIONS				
Increased	6%	23%	37%	35%
Same/Decreased	10%	26%	31%	33%

Sec.IV, Q.#5: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 38:
CONSIDER WASTE REDUCTION IN PROCESS/PRODUCT MODIFICATIONS

	Consider Waste Reduction for New Processes			
	Almost Always	Sometimes	Hardly Ever	Never
Total Sample	63%	33%	2%	2%
INDUSTRY				
Pulp & Paper	59%	39%	2%	0%
Chemical	64%	30%	3%	2%
Refinery/Petro.	63%	33%	0%	5%
# OF EMPLOYEES				
Less than 50	54%	37%	4%	5%
51 to 200	70%	28%	1%	1%
More than 200	66%	32%	2%	0%
BUSINESS CHANGE				
Up	64%	31%	3%	1%
Same	67%	29%	2%	2%
Down	56%	38%	0%	5%
HOMES/BUS./REC				
Within 500 feet	62%	35%	2%	1%
Not Near	65%	29%	2%	4%
VISIBLE POL.				
Y s	68%	29%	1%	1%
No	55%	38%	4%	4%
PUB. ENV. PROB.				
Yes	68%	27%	2%	3%
No	61%	35%	2%	2%
PUBLIC INTEREST				
Increased	73%	27%	0%	0%
Same	60%	34%	3%	3%
Decreased	63%	26%	5%	5%
PUB. AFF. STAFF				
Yes	70%	30%	0%	0%
No	61%	33%	3%	3%
COMMUNICATIONS				
Increased	70%	28%	1%	1%
Same/Decreased	57%	36%	3%	3%

Sec.IV, Q.#6: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 39:
EVALUATE WORKER HEALTH RISKS OF NEW MATERIALS

	Consider Health Risks of New Materials			
	Almost Always	Sometimes	Hardly Ever	Never
Total Sample	79%	18%	3%	0%
INDUSTRY				
Pulp & Paper	69%	28%	4%	0%
Chemical	81%	14%	4%	1%
Refinery/Petro.	85%	15%	0%	0%
# OF EMPLOYEES				
Less than 50	77%	15%	6%	1%
51 to 200	75%	25%	0%	0%
More than 200	86%	11%	3%	0%
BUSINESS CHANGE				
Up	81%	14%	4%	1%
Same	81%	19%	0%	0%
Down	75%	22%	4%	0%
HOMES/BUS./REC				
Within 500 feet	80%	16%	4%	0%
Not Near	77%	19%	2%	1%
VISIBLE POL.				
Yes	80%	16%	4%	1%
No	78%	20%	2%	0%
PUB. ENV. PROB.				
Yes	81%	16%	2%	1%
No	78%	18%	4%	0%
PUBLIC INTEREST				
Increased	83%	15%	2%	0%
Same	77%	18%	4%	1%
Decreased	89%	11%	0%	0%
PUB. AFF. STAFF				
Yes	91%	7%	2%	0%
No	77%	19%	3%	1%
COMMUNICATIONS				
Increased	85%	11%	4%	0%
Same/Decreased	74%	23%	3%	1%

Sec.IV, Q.#6: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 40:
MEASURE ANNUAL REDUCTIONS IN WASTE GENERATION AND RELEASES

	Measure Reductions Annually			
	Almost Always	Sometimes	Hardly Ever	Never
Total Sample	73%	16%	10%	1%
INDUSTRY				
Pulp & Paper	74%	19%	7%	0%
Chemical	72%	16%	11%	1%
Refinery/Petro.	75%	13%	10%	3%
# OF EMPLOYEES				
Less than 50	62%	19%	17%	2%
51 to 200	83%	11%	7%	0%
More than 200	78%	17%	5%	0%
BUSINESS CHANGE				
Up	72%	16%	12%	0%
Same	74%	21%	4%	2%
Down	78%	9%	11%	2%
HOMES/BUS./REC				
Within 500 feet	72%	16%	11%	1%
Not Near	77%	14%	8%	0%
VISIBLE POL.				
Yes	76%	15%	8%	1%
No	71%	16%	13%	0%
PUB. ENV. PROB.				
Yes	76%	16%	5%	2%
No	73%	15%	12%	0%
PUBLIC INTEREST				
Increased	85%	10%	5%	0%
Same	71%	16%	11%	1%
Decreased	68%	26%	5%	0%
PUB. AFF. STAFF				
Yes	84%	14%	2%	0%
No	71%	16%	12%	1%
COMMUNICATIONS				
Increased	78%	14%	8%	0%
Same/Decreased	70%	17%	12%	2%

Sec.IV, Q.#6: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 41:
PROGRAM FOR PROVIDING COMMUNITY INFORMATION

	Program for Giving Community Information	
	Yes	No
Total Sample	36%	64%
INDUSTRY		
Pulp & Paper	36%	64%
Chemical	33%	67%
Refinery/Petro.	44%	56%
# OF EMPLOYEES		
Less than 50	18%	82%
51 to 200	36%	64%
More than 200	59%	41%
BUSINESS CHANGE		
Up	34%	66%
Same	40%	60%
Down	36%	64%
HOMES/BUS./REC		
Within 500 feet	34%	66%
Not Near	39%	61%
VISIBLE POL.		
Yes	44%	56%
No	22%	78%
PUB. ENV. PROB.		
Yes	47%	53%
No	28%	72%
PUBLIC INTEREST		
Increased	54%	46%
Same	28%	72%
Decreased	42%	58%
PUB. AFF. STAFF		
Yes	62%	38%
No	30%	70%
COMMUNICATIONS		
Increased	63%	37%
Same/Decreased	12%	88%

Sec.V, Q.#1: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 42:
FREQUENCY OF COMMUNICATION EFFORTS IN PAST 5 YEARS

	Communications		
	Increased	Stayed the Same	Decreased
Total Sample	47%	52%	1%
INDUSTRY			
Pulp & Paper	50%	50%	0%
Chemical	45%	52%	2%
Refinery/Petro.	48%	53%	0%
# OF EMPLOYEES			
Less than 50	30%	67%	4%
51 to 200	46%	54%	0%
More than 200	71%	29%	0%
BUSINESS CHANGE			
Up	47%	51%	2%
Same	51%	49%	0%
Down	42%	56%	2%
HOMES/BUS./REC			
Within 500 feet	45%	52%	2%
Not Near	49%	51%	0%
VISIBLE POL.			
Yes	53%	46%	1%
No	36%	62%	2%
PUB. ENV. PROB.			
Yes	57%	43%	0%
No	39%	58%	2%
PUBLIC INTEREST			
Increased	72%	27%	2%
Same	39%	60%	1%
Decreased	32%	68%	0%
PUB. AFF. STAFF			
Yes	72%	28%	0%
No	41%	58%	2%

Sec.V, Q.#2: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 43:
PUBLIC COMMUNICATION ACTIVITIES FOR PAST YEAR

	Kinds of Communication Activities				
	Meet with Cmty Ldrs	Open House	Adver-tisements	Telephone Hotline	News-letters
Total Sample	36%	32%	19%	17%	12%
INDUSTRY					
Pulp & Paper	40%	34%	28%	14%	22%
Chemical	34%	27%	16%	13%	6%
Refinery/Petro.	38%	46%	19%	32%	22%
# OF EMPLOYEES					
Less than 50	18%	11%	1%	8%	4%
51 to 200	28%	35%	17%	19%	7%
More than 200	67%	54%	44%	25%	30%
BUSINESS CHANGE					
Up	33%	31%	20%	15%	8%
Same	38%	33%	25%	17%	21%
Down	37%	31%	12%	18%	12%
HOMES/BUS./REC					
Within 500 feet	38%	34%	21%	16%	15%
Not Near	31%	28%	16%	19%	7%
VISIBLE POL.					
Yes	45%	37%	22%	19%	15%
No	19%	23%	13%	13%	7%
PUB. ENV. PROB.					
Yes	55%	48%	28%	20%	20%
No	22%	20%	12%	14%	6%
PUBLIC INTEREST					
Increased	58%	49%	33%	23%	25%
Same	28%	26%	14%	13%	7%
Decreased	24%	24%	12%	24%	6%
PUB. AFF. STAFF					
Yes	71%	60%	45%	21%	33%
No	27%	25%	12%	16%	7%
COMMUNICATIONS					
Increased	63%	47%	32%	25%	24%
Same/Decreased	11%	19%	8%	10%	2%

Rows sum to more than 100% due to multiple responses.
Sec.V, Q.#3: A Study of Industry Response to SARA Title III
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Percentages based on all surveyed respondents.

(continued)

Table 43:
PUBLIC COMMUNICATION ACTIVITIES FOR PAST YEAR

	Kinds of Communication Activities				
	Advisory Groups	Town Meetings	Focus Groups	Opinion Surveys	None of These
Total Sample	12%	11%	8%	7%	43%
INDUSTRY					
Pulp & Paper	8%	10%	6%	6%	38%
Chemical	16%	11%	9%	7%	47%
Refinery/Petro.	5%	14%	8%	8%	38%
# OF EMPLOYEES					
Less than 50	3%	4%	1%	0%	71%
51 to 200	11%	11%	7%	5%	40%
More than 200	25%	20%	18%	20%	11%
BUSINESS CHANGE					
Up	13%	9%	9%	9%	45%
Same	10%	13%	6%	4%	40%
Down	10%	12%	8%	8%	43%
HOMES/BUS./REC					
Within 500 feet	10%	12%	7%	7%	41%
Not Near	14%	9%	10%	7%	46%
VISIBLE POL.					
Yes	14%	13%	8%	11%	35%
No	7%	6%	7%	2%	56%
PUB. ENV. PROB.					
Yes	17%	17%	13%	15%	24%
No	8%	6%	5%	2%	57%
PUBLIC INTEREST					
Increased	18%	23%	9%	12%	23%
Same	10%	7%	8%	5%	49%
Decreased	6%	6%	6%	12%	59%
PUB. AFF. STAFF					
Yes	26%	19%	21%	21%	12%
No	8%	9%	5%	4%	50%
COMMUNICATIONS					
Increased	20%	18%	13%	16%	19%
Same/Decreased	4%	4%	4%	0%	64%

Rows sum to more than 100% due to multiple responses.
Sec.V, Q.#3: A Study of Industry Response to SARA Title III
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Percentages based on all surveyed respondents.

Table 44:
REASONS FOR HAVING COMMUNICATION PROGRAMS

	Cost-Benefit				
	Very Important	Somewhat Important	Not Very Important	Not at all Important	No Answer /DK
Total Sample	31%	37%	17%	4%	11%
INDUSTRY					
Pulp & Paper	28%	43%	13%	4%	13%
Chemical	35%	32%	18%	5%	10%
Refinery/Petro.	25%	45%	18%	0%	13%
# OF EMPLOYEES					
Less than 50	22%	30%	24%	6%	17%
51 to 200	33%	43%	14%	4%	5%
More than 200	40%	42%	8%	0%	11%
BUSINESS CHANGE					
Up	35%	36%	18%	1%	10%
Same	30%	39%	17%	2%	13%
Down	23%	39%	13%	11%	14%
HOMES/BUS./REC					
Within 500 feet	33%	38%	17%	1%	10%
Not Near	27%	38%	14%	7%	14%
VISIBLE POL.					
Yes	32%	42%	13%	2%	10%
No	27%	31%	21%	6%	15%
PUB. ENV. PROB.					
Yes	40%	42%	12%	2%	4%
No	25%	35%	19%	5%	16%
PUBLIC INTEREST					
Increased	40%	40%	10%	2%	8%
Same	26%	39%	20%	4%	11%
Decreased	47%	26%	5%	5%	16%
PUB. AFF. STAFF					
Yes	37%	51%	7%	0%	5%
No	30%	35%	18%	4%	13%
COMMUNICATIONS					
Increased	44%	37%	8%	2%	8%
Same/Decreased	19%	40%	22%	5%	14%

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Percentages based on all surveyed respondents.

Table 45:
REASONS FOR HAVING COMMUNICATION PROGRAMS

	Increased Public Scrutiny				
	Very Important	Somewhat Important	Not Very Important	Not at all Important	No Answer /DK
Total Sample	12%	28%	31%	15%	14%
INDUSTRY					
Pulp & Paper	15%	20%	37%	11%	17%
Chemical	12%	28%	29%	18%	13%
Refinery/Petro.	8%	35%	30%	13%	15%
# OF EMPLOYEES					
Less than 50	6%	19%	35%	20%	21%
51 to 200	11%	34%	33%	14%	8%
More than 200	20%	31%	28%	9%	12%
BUSINESS CHANGE					
Up	13%	27%	31%	16%	13%
Same	13%	31%	33%	6%	17%
Down	7%	23%	32%	21%	16%
HOMES/BUS./REC					
Within 500 feet	12%	29%	33%	13%	14%
Not Near	11%	24%	32%	19%	15%
VISIBLE POL.					
Yes	15%	29%	32%	12%	12%
No	6%	25%	33%	19%	18%
PUB. ENV. PROB.					
Yes	20%	33%	28%	12%	6%
No	5%	22%	36%	18%	19%
PUBLIC INTEREST					
Increased	27%	43%	17%	5%	8%
Same	6%	22%	41%	17%	15%
Decreased	11%	16%	26%	32%	16%
PUB. AFF. STAFF					
Yes	21%	33%	33%	5%	9%
No	9%	27%	32%	17%	15%
COMMUNICATIONS					
Increased	20%	39%	25%	7%	10%
Same/Decreased	4%	17%	39%	22%	17%

Sec.V, Q.#5: A Study of Industry Response to SARA Title III
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Percentages based on all surveyed respondents.

Table 46:
REASONS FOR HAVING COMMUNICATION PROGRAMS

	TRI Release Reports				
	Very Important	Somewhat Important	Not Very Important	Not at all Important	No Answer /DK
Total Sample	5%	17%	29%	35%	14%
INDUSTRY					
Pulp & Paper	4%	24%	26%	33%	13%
Chemical	6%	14%	33%	33%	14%
Refinery/Petro.	5%	15%	18%	45%	18%
# OF EMPLOYEES					
Less than 50	2%	13%	27%	35%	23%
51 to 200	3%	17%	32%	41%	8%
More than 200	11%	23%	29%	26%	11%
BUSINESS CHANGE					
Up	4%	15%	28%	37%	15%
Same	9%	28%	31%	19%	13%
Down	2%	11%	29%	43%	16%
HOMES/BUS./REC					
Within 500 feet	5%	18%	30%	33%	14%
Not Near	5%	16%	27%	35%	16%
VISIBLE POL.					
Yes	6%	23%	30%	29%	12%
No	3%	9%	27%	42%	19%
PUB. ENV. PROB.					
Yes	10%	25%	39%	20%	6%
No	2%	11%	22%	45%	20%
PUBLIC INTEREST					
Increased	15%	25%	32%	20%	8%
Same	1%	13%	28%	43%	15%
Decreased	0%	26%	32%	21%	21%
PUB. AFF. STAFF					
Yes	9%	26%	30%	28%	7%
No	3%	16%	28%	36%	16%
COMMUNICATIONS					
Increased	6%	22%	31%	32%	9%
Same/Decreased	4%	14%	26%	36%	19%

Sec.V, Q.#5: A Study of Industry Response to SARA Title III
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Percentages based on all surveyed respondents.

Table 47:
REASONS FOR HAVING COMMUNICATION PROGRAMS

	Increase our Credibility				
	Very Important	Somewhat Important	Not Very Important	Not at all Important	No Answer /DK
Total Sample	33%	43%	8%	4%	13%
INDUSTRY					
Pulp & Paper	33%	41%	11%	2%	13%
Chemical	35%	43%	6%	6%	12%
Refinery/Petro.	28%	45%	10%	3%	15%
# OF EMPLOYEES					
Less than 50	22%	43%	8%	7%	20%
51 to 200	32%	51%	8%	4%	5%
More than 200	48%	32%	8%	0%	12%
BUSINESS CHANGE					
Up	36%	45%	6%	2%	11%
Same	31%	46%	4%	2%	17%
Down	25%	34%	16%	11%	14%
HOMES/BUS./REC					
Within 500 feet	34%	42%	9%	2%	13%
Not Near	31%	42%	6%	7%	14%
VISIBLE POL.					
Yes	37%	43%	6%	3%	12%
No	26%	42%	11%	6%	16%
PUB. ENV. PROB.					
Yes	35%	47%	8%	3%	6%
No	31%	39%	8%	5%	17%
PUBLIC INTEREST					
Increased	43%	40%	5%	2%	10%
Same	29%	45%	9%	5%	12%
Decreased	32%	37%	11%	5%	16%
PUB. AFF. STAFF					
Yes	58%	28%	9%	0%	5%
No	28%	46%	7%	4%	14%
COMMUNICATIONS					
Increased	53%	34%	4%	1%	8%
Same/Decreased	16%	50%	12%	7%	17%

Sec.V, Q.#5: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 48:
REASONS FOR HAVING COMMUNICATION PROGRAMS

	Turn Around Image				
	Very Important	Somewhat Important	Not Very Important	Not at all Important	No Answer /DK
Total Sample	26%	44%	11%	4%	14%
INDUSTRY					
Pulp & Paper	22%	50%	13%	2%	13%
Chemical	26%	43%	12%	6%	13%
Refinery/Petro.	30%	40%	8%	3%	20%
# OF EMPLOYEES					
Less than 50	17%	44%	10%	6%	22%
51 to 200	33%	43%	12%	4%	8%
More than 200	28%	48%	11%	2%	12%
BUSINESS CHANGE					
Up	31%	42%	10%	3%	14%
Same	22%	54%	4%	4%	17%
Down	18%	43%	20%	5%	14%
HOMES/BUS./REC					
Within 500 feet	25%	46%	11%	4%	14%
Not Near	27%	42%	11%	4%	16%
VISIBLE POL.					
Yes	29%	46%	7%	4%	14%
No	21%	43%	16%	3%	17%
PUB. ENV. PROB.					
Yes	31%	51%	9%	4%	5%
No	22%	40%	13%	4%	21%
PUBLIC INTEREST					
Increased	40%	38%	12%	2%	8%
Same	20%	48%	12%	6%	15%
Decreased	32%	47%	5%	0%	16%
PUB. AFF. STAFF					
Yes	33%	56%	7%	0%	5%
No	25%	42%	12%	5%	17%
COMMUNICATIONS					
Increased	36%	46%	6%	1%	11%
Same/Decreased	17%	43%	16%	7%	17%

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Percentages based on all surveyed respondents.

Table 49:
REASONS FOR HAVING COMMUNICATION PROGRAMS

	Decrease Demand for Regulations				
	Very Important	Somewhat Important	Not Very Important	Not at all Important	No Answer /DK
Total Sample	12%	31%	33%	12%	13%
INDUSTRY					
Pulp & Paper	9%	44%	26%	7%	13%
Chemical	13%	26%	38%	12%	12%
Refinery/Petro.	13%	28%	25%	20%	15%
# OF EMPLOYEES					
Less than 50	10%	27%	31%	12%	20%
51 to 200	17%	29%	34%	13%	7%
More than 200	6%	38%	32%	12%	11%
BUSINESS CHANGE					
Up	14%	36%	25%	13%	12%
Same	11%	22%	41%	11%	15%
Down	5%	29%	39%	13%	14%
HOMES/BUS./REC					
Within 500 feet	12%	32%	33%	12%	12%
Not Near	11%	29%	32%	13%	15%
VISIBLE POL.					
Yes	12%	32%	31%	14%	12%
No	11%	30%	34%	10%	15%
PUB. ENV. PROB.					
Yes	13%	31%	34%	15%	6%
No	11%	31%	31%	11%	17%
PUBLIC INTEREST					
Increased	13%	35%	30%	12%	10%
Same	12%	31%	34%	11%	13%
Decreased	5%	26%	26%	26%	16%
PUB. AFF. STAFF					
Yes	7%	40%	40%	9%	5%
No	12%	29%	31%	13%	14%
COMMUNICATIONS					
Increased	15%	37%	32%	7%	9%
Same/Decreased	8%	26%	32%	17%	16%

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Percentages based on all surveyed respondents.

Table 50:
REASONS FOR HAVING COMMUNICATION PROGRAMS

	Frightened Public				
	Very Important	Somewhat Important	Not Very Important	Not at all Important	No Answer /DK
Total Sample	15%	29%	32%	13%	12%
INDUSTRY					
Pulp & Paper	11%	30%	37%	9%	13%
Chemical	17%	31%	27%	15%	10%
Refinery/Petro.	18%	18%	40%	10%	15%
# OF EMPLOYEES					
Less than 50	19%	30%	24%	8%	19%
51 to 200	14%	30%	36%	14%	5%
More than 200	12%	25%	37%	15%	11%
BUSINESS CHANGE					
Up	14%	29%	34%	12%	11%
Same	17%	28%	26%	15%	15%
Down	16%	29%	32%	11%	13%
HOMES/BUS./REC					
Within 500 feet	15%	28%	34%	13%	11%
Not Near	16%	29%	28%	12%	14%
VISIBLE POL.					
Yes	15%	28%	32%	13%	12%
No	16%	29%	31%	10%	13%
PUB. ENV. PROB.					
Yes	15%	27%	38%	15%	5%
No	16%	30%	27%	11%	16%
PUBLIC INTEREST					
Increased	15%	30%	33%	13%	8%
Same	15%	28%	32%	12%	13%
Decreased	21%	26%	26%	16%	11%
PUB. AFF. STAFF					
Yes	16%	16%	40%	23%	5%
No	14%	31%	31%	10%	13%
COMMUNICATIONS					
Increased	13%	29%	33%	17%	8%
Same/Decreased	17%	27%	31%	8%	16%

Sec.V, Q.#5: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 51:
FREQUENCY OF VOLUNTARILY PROVIDING INFORMATION

	Info. about Plant Operations		
	Frequently	Seldom	Never
Total Sample	19%	40%	41%
INDUSTRY			
Pulp & Paper	30%	41%	30%
Chemical	13%	44%	43%
Refinery/Petro.	26%	24%	50%
# OF EMPLOYEES			
Less than 50	6%	28%	66%
51 to 200	13%	53%	34%
More than 200	42%	42%	17%
BUSINESS CHANGE			
Up	18%	41%	41%
Same	19%	41%	41%
Down	20%	38%	42%
HOMES/BUS./REC			
Within 500 feet	20%	42%	37%
Not Near	16%	36%	48%
VISIBLE POL.			
Yes	27%	43%	30%
No	5%	36%	59%
PUB. ENV. PROB.			
Yes	30%	40%	29%
No	10%	40%	50%
PUBLIC INTEREST			
Increased	33%	42%	25%
Same	10%	44%	46%
Decreased	37%	16%	47%
PUB. AFF. STAFF			
Yes	43%	48%	10%
No	13%	39%	48%
COMMUNICATIONS			
Increased	31%	45%	24%
Same/Decreased	8%	36%	57%

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A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 52:
FREQUENCY OF VOLUNTARILY PROVIDING INFORMATION

	SARA Title III Forms		
	Frequently	Seldom	Never
Total Sample	18%	24%	59%
INDUSTRY			
Pulp & Paper	15%	24%	61%
Chemical	18%	26%	56%
Refinery/Petro.	18%	18%	63%
# OF EMPLOYEES			
Less than 50	18%	18%	63%
51 to 200	12%	27%	61%
More than 200	25%	28%	48%
BUSINESS CHANGE			
Up	17%	23%	60%
Same	17%	25%	58%
Down	22%	24%	55%
HOMES/BUS./REC			
Within 500 feet	18%	26%	56%
Not Near	19%	19%	61%
VISIBLE POL.			
Yes	20%	27%	53%
No	14%	19%	67%
PUB. ENV. PROB.			
Yes	23%	25%	52%
No	15%	22%	64%
PUBLIC INTEREST			
Increased	25%	28%	47%
Same	12%	22%	66%
Decreased	42%	21%	37%
PUB. AFF. STAFF			
Yes	31%	19%	50%
No	15%	25%	60%
COMMUNICATIONS			
Increased	28%	28%	45%
Same/Decreased	10%	20%	69%

Sec.V, Q.#6: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 53:
FREQUENCY OF VOLUNTARILY PROVIDING INFORMATION

	Facility Accident/Incident History		
	Frequently	Seldom	Never
Total Sample	11%	25%	64%
INDUSTRY			
Pulp & Paper	15%	27%	58%
Chemical	9%	21%	69%
Refinery/Petro.	8%	35%	57%
# OF EMPLOYEES			
Less than 50	5%	18%	77%
51 to 200	8%	32%	61%
More than 200	21%	31%	48%
BUSINESS CHANGE			
Up	9%	28%	63%
Same	15%	19%	65%
Down	9%	28%	63%
HOMES/BUS./REC			
Within 500 feet	11%	24%	65%
Not Near	10%	29%	62%
VISIBLE POL.			
Yes	13%	31%	56%
No	7%	17%	76%
PUB. ENV. PROB.			
Yes	12%	27%	61%
No	9%	24%	66%
PUBLIC INTEREST			
Increased	17%	27%	57%
Same	9%	24%	67%
Decreased	6%	33%	61%
PUB. AFF. STAFF			
Yes	22%	34%	44%
No	7%	25%	68%
COMMUNICATIONS			
Increased	18%	34%	48%
Same/Decreased	3%	19%	78%

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Percentages based on all surveyed respondents.

Table 54:
FREQUENCY OF VOLUNTARILY PROVIDING INFORMATION

	Chemical Toxicity (MSDS)		
	Frequently	Seldom	Never
Total Sample	28%	30%	42%
INDUSTRY			
Pulp & Paper	22%	30%	48%
Chemical	32%	31%	37%
Refinery/Petro.	25%	28%	47%
# OF EMPLOYEES			
Less than 50	34%	16%	50%
51 to 200	26%	42%	32%
More than 200	25%	33%	41%
BUSINESS CHANGE			
Up	31%	28%	41%
Same	18%	32%	50%
Down	33%	31%	35%
HOMES/BUS./REC			
Within 500 feet	29%	30%	41%
Not Near	28%	28%	44%
VISIBLE POL.			
Yes	26%	32%	42%
No	31%	27%	42%
PUB. ENV. PROB.			
Yes	26%	33%	42%
No	31%	28%	42%
PUBLIC INTEREST			
Increased	28%	33%	39%
Same	27%	28%	45%
Decreased	47%	29%	24%
PUB. AFF. STAFF			
Yes	34%	27%	39%
No	28%	30%	42%
COMMUNICATIONS			
Increased	35%	33%	31%
Same/Decreased	22%	26%	51%

Sec.V, Q.#6: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 55:
FREQUENCY OF VOLUNTARILY PROVIDING INFORMATION

	'What to Do' in Emergencies		
	Frequently	Seldom	Never
Total Sample	20%	34%	46%
INDUSTRY			
Pulp & Paper	23%	30%	47%
Chemical	18%	38%	44%
Refinery/Petro.	22%	25%	53%
# OF EMPLOYEES			
Less than 50	16%	26%	58%
51 to 200	22%	37%	41%
More than 200	23%	42%	35%
BUSINESS CHANGE			
Up	17%	38%	45%
Same	19%	37%	44%
Down	28%	23%	49%
HOMES/BUS./REC			
Within 500 feet	16%	41%	43%
Not Near	27%	23%	51%
VISIBLE POL.			
Yes	21%	39%	40%
No	18%	27%	55%
PUB. ENV. PROB.			
Yes	22%	38%	40%
No	18%	31%	50%
PUBLIC INTEREST			
Increased	28%	36%	36%
Same	15%	35%	50%
Decreased	33%	17%	50%
PUB. AFF. STAFF			
Yes	27%	44%	29%
No	19%	32%	49%
COMMUNICATIONS			
Increased	29%	42%	30%
Same/Decreased	12%	27%	61%

Sec.V, Q.#6: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 56:
FREQUENCY OF VOLUNTARILY PROVIDING INFORMATION

	Environmental Problems/Risks		
	Frequently	Seldom	Never
Total Sample	8%	34%	58%
INDUSTRY			
Pulp & Paper	13%	34%	53%
Chemical	6%	31%	62%
Refinery/Petro.	8%	41%	51%
# OF EMPLOYEES			
Less than 50	4%	23%	73%
51 to 200	8%	34%	58%
More than 200	16%	49%	35%
BUSINESS CHANGE			
Up	9%	35%	56%
Same	11%	36%	53%
Down	6%	30%	65%
HOMES/BUS./REC			
Within 500 feet	6%	38%	56%
Not Near	12%	27%	61%
VISIBLE POL.			
Yes	10%	42%	49%
No	6%	22%	72%
PUB. ENV. PROB.			
Yes	11%	43%	46%
No	6%	27%	67%
PUBLIC INTEREST			
Increased	15%	43%	42%
Same	6%	29%	65%
Decreased	0%	44%	56%
PUB. AFF. STAFF			
Yes	15%	51%	34%
No	7%	30%	62%
COMMUNICATIONS			
Increased	17%	45%	38%
Same/Decreased	1%	24%	75%

Sec.V, Q.#6: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 57:
FREQUENCY OF VOLUNTARILY PROVIDING INFORMATION

	Efforts to Reduce Health Threats		
	Frequently	Seldom	Never
Total Sample	13%	35%	52%
INDUSTRY			
Pulp & Paper	19%	31%	50%
Chemical	10%	36%	54%
Refinery/Petro.	11%	38%	51%
# OF EMPLOYEES			
Less than 50	4%	25%	71%
51 to 200	7%	47%	47%
More than 200	30%	38%	32%
BUSINESS CHANGE			
Up	14%	37%	49%
Same	13%	37%	50%
Down	7%	33%	59%
HOMES/BUS./REC			
Within 500 feet	10%	40%	50%
Not Near	15%	29%	56%
VISIBLE POL.			
Yes	16%	39%	44%
No	5%	31%	64%
PUB. ENV. PROB.			
Yes	20%	39%	41%
No	7%	32%	61%
PUBLIC INTEREST			
Increased	20%	45%	35%
Same	9%	32%	60%
Decreased	17%	28%	56%
PUB. AFF. STAFF			
Yes	32%	37%	32%
No	7%	37%	56%
COMMUNICATIONS			
Increased	25%	42%	33%
Same/Decreased	1%	31%	68%

Sec.V, Q.#6: A Study of Industry Response to SARA Title III
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Percentages based on all surveyed respondents.

Table 58:
TARGETS FOR PUBLIC INFORMATION PROGRAMS

	Groups Targeted For Communications				
	Emergency Respndrs.	Gov't. Officials	Community Leaders	General Public	Health Profs.
Total Sample	62%	49%	48%	34%	30%
INDUSTRY					
Pulp & Paper	56%	50%	46%	35%	22%
Chemical	65%	47%	46%	33%	34%
Refinery/Petro.	60%	53%	55%	38%	28%
# OF EMPLOYEES					
Less than 50	50%	37%	23%	10%	20%
51 to 200	64%	46%	47%	34%	36%
More than 200	74%	68%	78%	65%	37%
BUSINESS CHANGE					
Up	64%	53%	47%	35%	36%
Same	57%	50%	48%	39%	26%
Down	59%	39%	46%	27%	20%
HOMES/BUS./REC					
Within 500 feet	61%	50%	50%	34%	31%
Not Near	61%	46%	41%	33%	28%
VISIBLE POL.					
Yes	68%	55%	56%	40%	35%
No	51%	38%	31%	22%	21%
PUB. ENV. PROB.					
Yes	72%	68%	63%	44%	37%
No	54%	34%	36%	26%	26%
PUBLIC INTEREST					
Increased	72%	68%	78%	58%	37%
Same	59%	41%	35%	24%	29%
Decreased	53%	47%	47%	26%	26%
PUB. AFF. STAFF					
Yes	72%	65%	77%	70%	33%
No	59%	46%	41%	26%	29%
COMMUNICATIONS					
Increased	79%	64%	74%	58%	41%
Same/Decreased	46%	36%	24%	12%	21%

Rows sum to more than 100% due to multiple responses.
Sec.V, Q.#7: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

(continued)

Table 58:
TARGETS FOR PUBLIC INFORMATION PROGRAMS

	Groups Targeted For Communications				
	Media	Educators	Envir. Activists	Not Targeted	No Answer
Total Sample	25%	16%	11%	20%	7%
INDUSTRY					
Pulp & Paper	33%	13%	15%	20%	9%
Chemical	23%	14%	8%	19%	6%
Refinery/Petro.	23%	25%	18%	23%	10%
# OF EMPLOYEES					
Less than 50	6%	6%	2%	29%	15%
51 to 200	21%	11%	7%	22%	4%
More than 200	57%	34%	29%	5%	3%
BUSINESS CHANGE					
Up	26%	14%	13%	19%	7%
Same	30%	22%	13%	20%	9%
Down	20%	13%	7%	23%	9%
HOMES/BUS./REC					
Within 500 feet	28%	15%	13%	21%	7%
Not Near	21%	16%	8%	20%	9%
VISIBLE POL.					
Yes	33%	21%	16%	15%	6%
No	12%	6%	3%	29%	10%
PUB. ENV. PROB.					
Yes	41%	24%	22%	13%	4%
No	14%	9%	5%	26%	10%
PUBLIC INTEREST					
Increased	50%	25%	27%	8%	7%
Same	15%	10%	4%	23%	7%
Decreased	26%	26%	21%	42%	5%
PUB. AFF. STAFF					
Yes	65%	35%	33%	5%	5%
No	16%	11%	6%	25%	7%
COMMUNICATIONS					
Increased	48%	29%	23%	5%	2%
Same/Decreased	6%	3%	2%	34%	12%

Rows sum to more than 100% due to multiple responses.
Sec.V, Q.#7: A Study of Industry Response to SARA Title III
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Percentages based on all surveyed respondents.

Table 59:
INDUSTRY TRADE ASSOCIATION SUPPORTS COMMUNICATION EFFORTS

	Trade Assoc. Encourage Efforts	
	Yes	No
Total Sample	76%	24%
INDUSTRY		
Pulp & Paper	56%	44%
Chemical	86%	14%
Refinery/Petro.	73%	28%
# OF EMPLOYEES		
Less than 50	70%	30%
51 to 200	77%	23%
More than 200	81%	19%
BUSINESS CHANGE		
Up	79%	21%
Same	71%	29%
Down	71%	29%
HOMES/BUS./REC		
Within 500 feet	80%	20%
Not Near	64%	36%
VISIBLE POL.		
Yes	78%	22%
No	69%	31%
PUB. ENV. PROB.		
Yes	83%	17%
No	69%	31%
PUBLIC INTEREST		
Increased	82%	18%
Same	70%	30%
Decreased	88%	13%
PUB. AFF. STAFF		
Yes	85%	15%
No	73%	27%
COMMUNICATIONS		
Increased	85%	15%
Same/Decreased	65%	35%

Sec.V, Q.#9: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 60:
FORMS OF TRADE ASSOCIATION SUPPORT

	Form of Support					
	Training Mater.	Info. Clearing -house	Public Mater.	Media Support	No Help	No Answer
Total Sample	48%	39%	35%	28%	24%	14%
INDUSTRY						
Pulp & Paper	26%	28%	19%	22%	41%	17%
Chemical	60%	42%	46%	35%	13%	13%
Refinery/Petro.	38%	45%	25%	15%	28%	15%
# OF EMPLOYEES						
Less than 50	43%	33%	30%	24%	28%	14%
51 to 200	56%	36%	37%	25%	21%	16%
More than 200	43%	51%	38%	35%	18%	14%
BUSINESS CHANGE						
Up	52%	43%	40%	33%	21%	15%
Same	41%	30%	37%	26%	28%	11%
Down	43%	39%	21%	18%	25%	18%
HOMES/BUS./REC						
Within 500 feet	52%	42%	37%	29%	20%	13%
Not Near	39%	34%	31%	25%	31%	16%
VISIBLE POL.						
Yes	47%	40%	39%	34%	21%	14%
No	47%	36%	27%	17%	28%	15%
PUB. ENV. PROB.						
Yes	51%	49%	42%	34%	16%	14%
No	47%	34%	31%	24%	29%	12%
PUBLIC INTEREST						
Increased	59%	49%	46%	39%	19%	7%
Same	45%	36%	31%	25%	28%	13%
Decreased	42%	47%	37%	21%	11%	26%
PUB. AFF. STAFF						
Yes	47%	60%	49%	42%	14%	9%
No	48%	35%	32%	25%	25%	16%
COMMUNICATIONS						
Increased	53%	54%	42%	36%	14%	11%
Same/Decreased	43%	27%	29%	21%	33%	17%

Rows sum to more than 100% due to multiple responses.
Sec.V, Q.#10: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 61:
HAVE TRADE ASSOCIATION MATERIALS BEEN HELPFUL
DEVELOPING/IMPLEMENTING A COMMUNITY OUTREACH PROGRAM

	Trade Assoc. Programs Helped?		
	Yes	No	No Help
Total Sample	30%	46%	24%
INDUSTRY			
Pulp & Paper	20%	41%	39%
Chemical	35%	46%	19%
Refinery/Petro.	25%	50%	25%
# OF EMPLOYEES			
Less than 50	16%	52%	31%
51 to 200	33%	43%	24%
More than 200	43%	37%	20%
BUSINESS CHANGE			
Up	34%	41%	25%
Same	28%	48%	24%
Down	21%	50%	29%
HOMES/BUS./REC			
Within 500 feet	33%	45%	22%
Not Near	24%	44%	33%
VISIBLE POL.			
Yes	35%	44%	22%
No	21%	46%	33%
PUB. ENV. PROB.			
Yes	44%	39%	17%
No	21%	50%	29%
PUBLIC INTEREST			
Increased	47%	42%	12%
Same	24%	47%	29%
Decreased	26%	47%	26%
PUB. AFF. STAFF			
Yes	51%	35%	14%
No	25%	47%	28%
COMMUNICATIONS			
Increased	44%	39%	17%
Same/Decreased	17%	50%	33%

Sec.V, Q.#11: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 62:
LEVEL OF PUBLIC/MEDIA INTEREST IN FACILITY

	PUBLIC INTEREST		
	Increased	Same	Decreased
Total Sample	27%	64%	9%
INDUSTRY			
Pulp & Paper	27%	69%	4%
Chemical	24%	65%	10%
Refinery/Petro.	38%	55%	8%
# OF EMPLOYEES			
Less than 50	13%	73%	13%
51 to 200	28%	67%	5%
More than 200	44%	49%	6%
BUSINESS CHANGE			
Up	23%	70%	7%
Same	40%	57%	4%
Down	23%	60%	17%
HOMES/BUS./REC			
Within 500 feet	30%	62%	9%
Not Near	22%	69%	9%
VISIBLE POL.			
Yes	38%	55%	7%
No	11%	79%	11%
PUB. ENV. PROB.			
Yes	45%	45%	10%
No	14%	78%	8%
PUB. AFF. STAFF			
Yes	43%	50%	7%
No	23%	68%	9%
COMMUNICATIONS			
Increased	41%	53%	6%
Same/Decreased	15%	74%	11%

Sec.VI, Q.#1: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 63:
EXPERIENCED PUBLICIZED ENVIRONMENTAL PROBLEMS OR INCIDENTS

	PUB. ENV. PROB.	
	Yes	No
Total Sample	42%	58%
INDUSTRY		
Pulp & Paper	44%	56%
Chemical	40%	60%
Refinery/Petro.	45%	55%
# OF EMPLOYEES		
Less than 50	27%	73%
51 to 200	45%	55%
More than 200	56%	44%
BUSINESS CHANGE		
Up	40%	60%
Same	44%	56%
Down	43%	57%
HOMES/BUS./REC		
Within 500 feet	48%	52%
Not Near	30%	70%
VISIBLE POL.		
Yes	52%	48%
No	24%	76%
PUBLIC INTEREST		
Increased	70%	30%
Same	29%	71%
Decreased	47%	53%
PUB. AFF. STAFF		
Yes	64%	36%
No	36%	64%
COMMUNICATIONS		
Increased	51%	49%
Same/Decreased	34%	66%

Sec.VI, Q.#2: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 64:
WOULD PUBLICITY ABOUT CHEMICALS USED CAUSE UNDUE ALARM

	Publicity About Chems. Cause Alarm?	
	Yes	No
Total Sample	39%	61%
INDUSTRY		
Pulp & Paper	31%	69%
Chemical	43%	57%
Refinery/Petro.	36%	64%
# OF EMPLOYEES		
Less than 50	36%	64%
51 to 200	49%	51%
More than 200	33%	67%
BUSINESS CHANGE		
Up	39%	61%
Same	41%	59%
Down	38%	62%
HOMES/BUS./REC		
Within 500 feet	41%	59%
Not Near	36%	64%
VISIBLE POL.		
Yes	41%	59%
No	37%	63%
PUB. ENV. PROB.		
Yes	48%	52%
No	33%	67%
PUBLIC INTEREST		
Increased	51%	49%
Same	35%	65%
Decreased	32%	68%
PUB. AFF. STAFF		
Yes	33%	67%
No	41%	59%
COMMUNICATIONS		
Increased	42%	58%
Same/Decreased	37%	63%

Sec.VI, Q.#4: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 65:
ADMIRATION OF COMMUNITY OR ACTIVIST GROUP

	Environmental Practices Admired?	
	Yes	No
Total Sample	81%	19%
INDUSTRY		
Pulp & Paper	73%	27%
Chemical	85%	15%
Refinery/Petro.	80%	20%
# OF EMPLOYEES		
Less than 50	93%	7%
51 to 200	86%	14%
More than 200	60%	40%
BUSINESS CHANGE		
Up	81%	19%
Same	87%	13%
Down	78%	22%
HOMES/BUS./REC		
Within 500 feet	81%	19%
Not Near	81%	19%
VISIBLE POL.		
Yes	75%	25%
No	92%	8%
PUB. ENV. PROB.		
Yes	76%	24%
No	85%	15%
PUBLIC INTEREST		
Increased	69%	31%
Same	86%	14%
Decreased	84%	16%
PUB. AFF. STAFF		
Yes	64%	36%
No	86%	14%
COMMUNICATIONS		
Increased	71%	29%
Same/Decreased	91%	9%

Sec.VI, Q.#5: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 66:
PUBLICLY TARGETED BY COMMUNITY OR ACTIVIST GROUP

	Environmental Problems Targeted?	
	Yes	No
Total Sample	21%	79%
INDUSTRY		
Pulp & Paper	32%	68%
Chemical	17%	83%
Refinery/Petro.	20%	80%
# OF EMPLOYEES		
Less than 50	11%	89%
51 to 200	19%	81%
More than 200	41%	59%
BUSINESS CHANGE		
Up	16%	84%
Same	28%	72%
Down	29%	71%
HOMES/BUS./REC		
Within 500 feet	23%	77%
Not Near	19%	81%
VISIBLE POL.		
Yes	30%	70%
No	8%	92%
PUB. ENV. PROB.		
Yes	42%	58%
No	7%	93%
PUBLIC INTEREST		
Increased	42%	58%
Same	12%	88%
Decreased	32%	68%
PUB. AFF. STAFF		
Yes	43%	57%
No	17%	83%
COMMUNICATIONS		
Increased	32%	68%
Same/Decreased	13%	88%

Sec.VI, Q.#6: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 67:
CHANGES IN PUBLIC REQUESTS FOR INFORMATION IN LAST FIVE YEARS

	Changes in Requests for Information		
	Increased	Stayed Same	Decreased
Total Sample	17%	73%	11%
INDUSTRY			
Pulp & Paper	24%	64%	12%
Chemical	11%	76%	13%
Refinery/Petro.	26%	72%	3%
# OF EMPLOYEES			
Less than 50	4%	80%	16%
51 to 200	14%	77%	9%
More than 200	35%	59%	6%
BUSINESS CHANGE			
Up	12%	79%	9%
Same	21%	69%	10%
Down	21%	63%	15%
HOMES/BUS./REC			
Within 500 feet	18%	71%	10%
Not Near	13%	76%	12%
VISIBLE POL.			
Yes	23%	67%	10%
No	5%	82%	13%
PUB. ENV. PROB.			
Yes	30%	56%	14%
No	6%	86%	8%
PUBLIC INTEREST			
Increased	44%	49%	7%
Same	6%	88%	6%
Decreased	6%	29%	65%
PUB. AFF. STAFF			
Yes	37%	56%	7%
No	11%	77%	12%
COMMUNICATIONS			
Increased	29%	64%	7%
Same/Decreased	5%	80%	14%

Sec.VI, Q.#7: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 68:
FREQUENCY OF REQUESTS FROM THE MEDIA
IN THE PAST YEAR

	Media			
	Never	1-3 Times	3-8 Times	9 or More Times
Total Sample	69%	22%	6%	4%
INDUSTRY				
Pulp & Paper	68%	19%	8%	6%
Chemical	73%	21%	6%	1%
Refinery/Petro.	55%	32%	3%	11%
# OF EMPLOYEES				
Less than 50	86%	14%	0%	0%
51 to 200	74%	20%	3%	3%
More than 200	40%	35%	16%	10%
BUSINESS CHANGE				
Up	71%	19%	6%	3%
Same	60%	29%	6%	6%
Down	72%	22%	4%	2%
HOMES/BUS./REC				
Within 500 feet	70%	21%	6%	4%
Not Near	66%	26%	5%	4%
VISIBLE POL.				
Yes	60%	28%	6%	6%
No	82%	15%	3%	0%
PUB. ENV. PROB.				
Yes	46%	37%	10%	7%
No	84%	12%	2%	1%
PUBLIC INTEREST				
Increased	48%	33%	7%	12%
Same	77%	20%	4%	0%
Decreased	67%	17%	17%	0%
PUB. AFF. STAFF				
Yes	34%	37%	20%	10%
No	76%	20%	2%	2%
COMMUNICATIONS				
Increased	50%	32%	10%	8%
Same/Decreased	84%	14%	2%	0%

Sec.VI, Q.#8: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 69:
FREQUENCY OF REQUESTS FROM HEALTH PROFESSIONALS
IN THE PAST YEAR

	Health Professionals			
	Never	1-3 Times	3-8 Times	9 or More Times
Total Sample	73%	21%	5%	1%
INDUSTRY				
Pulp & Paper	75%	21%	4%	0%
Chemical	74%	21%	4%	2%
Refinery/Petro.	66%	24%	8%	3%
# OF EMPLOYEES				
Less than 50	76%	21%	2%	0%
51 to 200	78%	16%	5%	0%
More than 200	63%	25%	6%	5%
BUSINESS CHANGE				
Up	73%	20%	5%	2%
Same	72%	21%	6%	2%
Down	76%	22%	2%	0%
HOMES/BUS./REC				
Within 500 feet	76%	19%	4%	1%
Not Near	68%	24%	5%	2%
VISIBLE POL.				
Yes	69%	25%	5%	1%
No	80%	14%	3%	2%
PUB. ENV. PROB.				
Yes	74%	21%	4%	1%
No	74%	20%	5%	2%
PUBLIC INTEREST				
Increased	58%	31%	10%	2%
Same	79%	17%	3%	1%
Decreased	78%	17%	0%	6%
PUB. AFF. STAFF				
Yes	66%	27%	2%	5%
No	75%	20%	5%	1%
COMMUNICATIONS				
Increased	63%	28%	6%	3%
Same/Decreased	82%	15%	3%	0%

Sec.VI, Q.#8: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 70:
FREQUENCY OF REQUESTS FROM ENVIRONMENTAL ACTIVISTS
IN THE PAST YEAR

	Environmental Activists			
	Never	1-3 Times	3-8 Times	9 or More Times
Total Sample	78%	14%	6%	2%
INDUSTRY				
Pulp & Paper	70%	17%	9%	4%
Chemical	83%	13%	4%	0%
Refinery/Petro.	74%	16%	5%	5%
# OF EMPLOYEES				
Less than 50	95%	4%	1%	0%
51 to 200	85%	8%	5%	1%
More than 200	49%	35%	11%	5%
BUSINESS CHANGE				
Up	80%	15%	4%	1%
Same	77%	11%	8%	4%
Down	78%	15%	6%	2%
HOMES/BUS./REC				
Within 500 feet	79%	15%	5%	1%
Not Near	79%	12%	6%	2%
VISIBLE POL.				
Yes	72%	18%	7%	3%
No	91%	7%	2%	0%
PUB. ENV. PROB.				
Yes	65%	22%	10%	3%
No	89%	9%	2%	0%
PUBLIC INTEREST				
Increased	56%	24%	15%	5%
Same	89%	9%	2%	0%
Decreased	72%	28%	0%	0%
PUB. AFF. STAFF				
Yes	49%	34%	15%	2%
No	85%	10%	3%	2%
COMMUNICATIONS				
Increased	63%	24%	9%	4%
Same/Decreased	92%	5%	3%	0%

Sec.VI, Q.#8: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 71:
FREQUENCY OF REQUESTS FROM COMMUNITY LEADERS
IN THE PAST YEAR

	Community Leaders			
	Never	1-3 Times	3-8 Times	9 or More Times
Total Sample	68%	25%	4%	2%
INDUSTRY				
Pulp & Paper	60%	32%	4%	4%
Chemical	72%	23%	2%	2%
Refinery/Petro.	66%	24%	11%	0%
# OF EMPLOYEES				
Less than 50	83%	14%	2%	0%
51 to 200	71%	26%	1%	1%
More than 200	46%	38%	10%	6%
BUSINESS CHANGE				
Up	71%	23%	4%	2%
Same	57%	34%	6%	4%
Down	76%	20%	2%	2%
HOMES/BUS./REC				
Within 500 feet	68%	26%	5%	1%
Not Near	71%	23%	2%	4%
VISIBLE POL.				
Yes	60%	31%	6%	3%
No	83%	15%	1%	1%
PUB. ENV. PROB.				
Yes	60%	29%	8%	3%
No	75%	22%	2%	2%
PUBLIC INTEREST				
Increased	53%	34%	8%	5%
Same	74%	23%	1%	1%
Decreased	78%	11%	11%	0%
PUB. AFF. STAFF				
Yes	46%	34%	10%	10%
No	74%	23%	3%	1%
COMMUNICATIONS				
Increased	54%	33%	9%	5%
Same/Decreased	82%	18%	0%	0%

Sec.VI, Q.#8: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 72:
FREQUENCY OF REQUESTS FROM EDUCATORS
IN THE PAST YEAR

	Educators			
	Never	1-3 Times	3-8 Times	9 or More Times
Total Sample	81%	14%	3%	2%
INDUSTRY				
Pulp & Paper	75%	19%	2%	4%
Chemical	84%	13%	2%	1%
Refinery/Petro.	79%	11%	8%	3%
# OF EMPLOYEES				
Less than 50	96%	4%	0%	0%
51 to 200	85%	8%	4%	3%
More than 200	57%	35%	5%	3%
BUSINESS CHANGE				
Up	84%	11%	4%	1%
Same	72%	19%	4%	6%
Down	85%	15%	0%	0%
HOMES/BUS./REC				
Within 500 feet	81%	14%	3%	1%
Not Near	82%	13%	2%	2%
VISIBLE POL.				
Yes	73%	19%	4%	3%
No	95%	5%	0%	0%
PUB. ENV. PROB.				
Yes	76%	16%	4%	3%
No	86%	12%	2%	1%
PUBLIC INTEREST				
Increased	69%	20%	5%	5%
Same	88%	11%	1%	1%
Decreased	72%	17%	11%	0%
PUB. AFF. STAFF				
Yes	59%	37%	2%	2%
No	86%	9%	3%	2%
COMMUNICATIONS				
Increased	75%	18%	4%	3%
Same/Decreased	87%	10%	2%	1%

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A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 73:
FREQUENCY OF REQUESTS FROM EMERGENCY RESPONDERS
IN THE PAST YEAR

	Emergency Responders			
	Never	1-3 Times	3-8 Times	9 or More Times
Total Sample	40%	49%	8%	3%
INDUSTRY				
Pulp & Paper	45%	45%	8%	2%
Chemical	37%	52%	8%	3%
Refinery/Petro.	42%	47%	8%	3%
# OF EMPLOYEES				
Less than 50	45%	51%	4%	0%
51 to 200	41%	47%	8%	4%
More than 200	33%	49%	13%	5%
BUSINESS CHANGE				
Up	33%	54%	8%	4%
Same	53%	32%	13%	2%
Down	43%	56%	2%	0%
HOMES/BUS./REC				
Within 500 feet	38%	50%	9%	3%
Not Near	45%	48%	5%	2%
VISIBLE POL.				
Yes	38%	49%	10%	3%
No	45%	49%	2%	2%
PUB. ENV. PROB.				
Yes	35%	48%	13%	3%
No	45%	49%	4%	2%
PUBLIC INTEREST				
Increased	32%	49%	12%	7%
Same	42%	51%	6%	1%
Decreased	56%	33%	11%	0%
PUB. AFF. STAFF				
Yes	29%	49%	17%	5%
No	43%	49%	6%	2%
COMMUNICATIONS				
Increased	30%	54%	13%	4%
Same/Decreased	50%	45%	3%	2%

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Percentages based on all surveyed respondents.

Table 74:
FREQUENCY OF REQUESTS FROM INDIVIDUAL CITIZENS
IN THE PAST YEAR

	Individual Citizens			
	Never	1-3 Times	3-8 Times	9 or More Times
Total Sample	68%	22%	6%	5%
INDUSTRY				
Pulp & Paper	58%	25%	9%	8%
Chemical	71%	24%	2%	3%
Refinery/Petro.	71%	11%	13%	5%
# OF EMPLOYEES				
Less than 50	85%	14%	1%	0%
51 to 200	74%	22%	3%	1%
More than 200	38%	32%	16%	14%
BUSINESS CHANGE				
Up	70%	21%	3%	6%
Same	66%	21%	9%	4%
Down	65%	24%	9%	2%
HOMES/BUS./REC				
Within 500 feet	63%	26%	6%	6%
Not Near	77%	15%	6%	2%
VISIBLE POL.				
Yes	57%	27%	10%	6%
No	85%	13%	0%	2%
PUB. ENV. PROB.				
Yes	52%	30%	11%	8%
No	80%	16%	2%	2%
PUBLIC INTEREST				
Increased	46%	27%	14%	14%
Same	76%	22%	2%	0%
Decreased	78%	6%	6%	11%
PUB. AFF. STAFF				
Yes	39%	27%	20%	15%
No	75%	20%	3%	2%
COMMUNICATIONS				
Increased	52%	28%	13%	8%
Same/Decreased	82%	16%	0%	2%

Sec.VI, Q.#8: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 75:
FREQUENCY OF REQUESTS FOR SARA TITLE III FORMS
IN THE LAST FIVE YEARS

	SARA Title III Forms		
	Frequently	Seldom	Never
Total Sample	3%	19%	78%
INDUSTRY			
Pulp & Paper	0%	17%	83%
Chemical	4%	20%	76%
Refinery/Petro.	5%	18%	76%
# OF EMPLOYEES			
Less than 50	1%	18%	81%
51 to 200	4%	15%	81%
More than 200	5%	24%	71%
BUSINESS CHANGE			
Up	1%	14%	85%
Same	4%	32%	64%
Down	7%	15%	78%
HOMES/BUS./REC			
Within 500 feet	2%	22%	75%
Not Near	5%	12%	83%
VISIBLE POL.			
Yes	4%	19%	78%
No	2%	19%	79%
PUB. ENV. PROB.			
Yes	3%	25%	71%
No	3%	13%	84%
PUBLIC INTEREST			
Increased	2%	31%	68%
Same	3%	11%	86%
Decreased	11%	33%	56%
PUB. AFF. STAFF			
Yes	5%	27%	68%
No	3%	17%	80%
COMMUNICATIONS			
Increased	5%	20%	75%
Same/Decreased	2%	18%	81%

Sec.VI, Q.#9: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 77:
FREQUENCY OF REQUESTS FOR GENERAL TOXICITY INFORMATION (MSDS)
IN THE LAST FIVE YEARS

	General Toxicity (MSDS)		
	Frequently	Seldom	Never
Total Sample	11%	28%	61%
INDUSTRY			
Pulp & Paper	0%	26%	74%
Chemical	15%	30%	55%
Refinery/Petro.	16%	24%	61%
# OF EMPLOYEES			
Less than 50	15%	24%	61%
51 to 200	10%	28%	62%
More than 200	6%	34%	60%
BUSINESS CHANGE			
Up	11%	27%	63%
Same	6%	36%	58%
Down	17%	23%	60%
HOMES/BUS./REC			
Within 500 feet	12%	31%	57%
Not Near	10%	23%	67%
VISIBLE POL.			
Yes	8%	30%	62%
No	15%	26%	59%
PUB. ENV. PROB.			
Yes	9%	33%	58%
No	13%	25%	63%
PUBLIC INTEREST			
Increased	10%	41%	49%
Same	10%	24%	66%
Decreased	22%	22%	56%
PUB. AFF. STAFF			
Yes	10%	32%	59%
No	11%	27%	61%
COMMUNICATIONS			
Increased	8%	35%	57%
Same/Decreased	14%	22%	64%

Sec.VI, Q.#9: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 78:
FREQUENCY OF REQUESTS FOR 'WHAT TO DO' IN EMERGENCIES
IN THE LAST FIVE YEARS

	'What to do' in Emergencies		
	Frequently	Seldom	Never
Total Sample	5%	24%	71%
INDUSTRY			
Pulp & Paper	0%	23%	77%
Chemical	7%	21%	71%
Refinery/Petro.	3%	34%	63%
# OF EMPLOYEES			
Less than 50	1%	18%	80%
51 to 200	10%	18%	72%
More than 200	3%	37%	60%
BUSINESS CHANGE			
Up	5%	20%	76%
Same	2%	34%	64%
Down	8%	21%	71%
HOMES/BUS./REC			
Within 500 feet	5%	29%	66%
Not Near	4%	14%	82%
VISIBLE POL.			
Yes	3%	28%	69%
No	7%	17%	76%
PUB. ENV. PROB.			
Yes	5%	33%	63%
No	5%	17%	78%
PUBLIC INTEREST			
Increased	3%	47%	50%
Same	5%	16%	79%
Decreased	6%	12%	82%
PUB. AFF. STAFF			
Yes	5%	41%	54%
No	5%	20%	76%
COMMUNICATIONS			
Increased	6%	33%	61%
Same/Decreased	3%	16%	81%

Sec.VI, Q.#9: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 79:
FREQUENCY OF REQUESTS FOR EFFORTS TO REDUCE RISKS
IN THE LAST FIVE YEARS

	Reports on Efforts to Reduce Risks		
	Frequently	Seldom	Never
Total Sample	3%	15%	82%
INDUSTRY			
Pulp & Paper	4%	13%	83%
Chemical	2%	13%	85%
Refinery/Petro.	5%	24%	71%
# OF EMPLOYEES			
Less than 50	0%	6%	94%
51 to 200	3%	13%	85%
More than 200	8%	31%	61%
BUSINESS CHANGE			
Up	3%	14%	83%
Same	6%	17%	77%
Down	2%	15%	83%
HOMES/BUS./REC			
Within 500 feet	2%	18%	79%
Not Near	5%	10%	86%
VISIBLE POL.			
Yes	4%	17%	79%
No	2%	12%	86
PUB. ENV. PROB.			
Yes	6%	19%	75%
No	2%	13%	86%
PUBLIC INTEREST			
Increased	7%	34%	59%
Same	1%	9%	90%
Decreased	6%	6%	89%
PUB. AFF. STAFF			
Yes	12%	24%	63%
No	1%	13%	86%
COMMUNICATIONS			
Increased	5%	23%	72%
Same/Decreased	2%	8%	90%

Sec.VI, Q.#9: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 80:
FREQUENCY OF REQUESTS FOR EMERGENCY RESPONSE PLANS
IN THE LAST FIVE YEARS

	Emergency Response Plans		
	Frequently	Seldom	Never
Total Sample	7%	32%	62%
INDUSTRY			
Pulp & Paper	0%	32%	68%
Chemical	9%	32%	59%
Refinery/Petro.	8%	29%	63%
# OF EMPLOYEES			
Less than 50	1%	25%	73%
51 to 200	11%	27%	62%
More than 200	8%	45%	47%
BUSINESS CHANGE			
Up	6%	30%	64%
Same	4%	42%	54%
Down	9%	24%	67%
HOMES/BUS./REC			
Within 500 feet	7%	35%	58%
Not Near	5%	26%	70%
VISIBLE POL.			
Yes	6%	36%	58%
No	7%	25%	68%
PUB. ENV. PROB.			
Yes	9%	36%	55%
No	5%	28%	68%
PUBLIC INTEREST			
Increased	10%	49%	41%
Same	5%	24%	71%
Decreased	6%	28%	67%
PUB. AFF. STAFF			
Yes	12%	39%	49%
No	5%	30%	65%
COMMUNICATIONS			
Increased	10%	38%	52%
Same/Decreased	3%	26%	71%

Sec.VI, Q.#9: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 81:
CONDUCTED EMPLOYEE COMMUNICATION TRAINING SESSIONS
IN THE PAST YEAR

	Employee Communication Training	
	Yes	No
Total Sample	34%	66%
INDUSTRY		
Pulp & Paper	38%	62%
Chemical	35%	65%
Refinery/Petro.	28%	72%
# OF EMPLOYEES		
Less than 50	21%	79%
51 to 200	28%	72%
More than 200	58%	42%
BUSINESS CHANGE		
Up	36%	64%
Same	31%	69%
Down	33%	67%
HOMES/BUS./REC		
Within 500 feet	35%	65%
Not Near	33%	67%
VISIBLE POL.		
Yes	37%	63%
No	28%	72%
PUB. ENV. PROB.		
Yes	38%	62%
No	31%	69%
PUBLIC INTEREST		
Increased	54%	46%
Same	24%	76%
Decreased	47%	53%
PUB. AFF. STAFF		
Yes	58%	42%
No	29%	71%
COMMUNICATIONS		
Increased	48%	52%
Same/Decreased	22%	78%

Sec.VII, Q.#1: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 82:
PERCENTAGE OF EMPLOYEES COMMUNICATING WITH THE PUBLIC
WHO HAVE HAD COMMUNICATION TRAINING

	Percentage who have had Communication Training			
	No Training	Less than 30%	30% to 60%	More than 60%
Total Sample	66%	19%	5%	10%
INDUSTRY				
Pulp & Paper	63%	26%	4%	7%
Chemical	66%	20%	5%	9%
Refinery/Petro.	73%	8%	5%	15%
# OF EMPLOYEES				
Less than 50	79%	16%	0%	5%
51 to 200	74%	17%	3%	7%
More than 200	43%	25%	12%	20%
BUSINESS CHANGE				
Up	65%	19%	3%	13%
Same	70%	17%	6%	7%
Down	68%	21%	5%	5%
HOMES/BUS./REC				
Within 500 feet	67%	21%	5%	8%
Not Near	67%	16%	4%	13%
VISIBLE POL.				
Yes	63%	22%	5%	10%
No	73%	16%	3%	8%
PUB. ENV. PROB.				
Yes	62%	17%	8%	13%
No	70%	20%	2%	8%
PUBLIC INTEREST				
Increased	47%	30%	12%	12%
Same	77%	14%	2%	7%
Decreased	53%	21%	0%	26%
PUB. AFF. STAFF				
Yes	42%	16%	16%	26%
No	72%	21%	2%	6%
COMMUNICATIONS				
Increased	53%	27%	6%	14%
Same/Decreased	79%	12%	3%	6%

Sec.VII, Q.#2: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on those whose facility has conducted
communication training sessions in the past year.

Table 83:
TYPES OF EMPLOYEES COMMUNICATING WITH THE PUBLIC

	Types of Employees				
	Plant Manager	Environ-mental Affairs Staff	Corporate Communi-cations	Public Affairs Staff	Other Technical Facility Staff
Total Sample	82%	53%	53%	19%	26%
INDUSTRY					
Pulp & Paper	88%	54%	50%	33%	25%
Chemical	80%	53%	51%	11%	26%
Refinery/Petro.	82%	54%	62%	28%	28%
# OF EMPLOYEES					
Less than 50	78%	34%	44%	5%	27%
51 to 200	78%	58%	46%	4%	25%
More than 200	92%	71%	75%	57%	30%
BUSINESS CHANGE					
Up	82%	51%	55%	18%	31%
Same	83%	52%	54%	23%	23%
Down	81%	57%	49%	19%	23%
HOMES/BUS./REC					
Within 500 feet	79%	55%	56%	21%	32%
Not Near	87%	48%	49%	16%	18%
VISIBLE POL.					
Yes	85%	61%	57%	27%	27%
No	75%	38%	47%	6%	27%
PUB. ENV. PROB.					
Yes	87%	73%	56%	30%	24%
No	77%	38%	51%	12%	28%
PUBLIC INTEREST					
Increased	88%	74%	55%	31%	40%
Same	80%	45%	52%	15%	23%
Decreased	68%	47%	58%	16%	16%
COMMUNICATIONS					
Increased	90%	66%	58%	30%	36%
Same/Decreased	75%	41%	49%	10%	19%

Rows sum to more than 100% due to multiple responses.
Sec.VII, Q.#3: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 84:
ENVIRONMENTAL LAWS HAVE MADE PUBLIC FEEL SAFER

	Made Public Feel Safer			
	Agree Strongly	Agree Somewhat	Disagree Somewhat	Disagree Strongly
Total Sample	6%	30%	43%	22%
INDUSTRY				
Pulp & Paper	2%	41%	43%	15%
Chemical	6%	24%	48%	21%
Refinery/Petro.	8%	33%	28%	33%
# OF EMPLOYEES				
Less than 50	6%	24%	49%	21%
51 to 200	7%	36%	37%	20%
More than 200	3%	32%	42%	23%
BUSINESS CHANGE				
Up	9%	29%	39%	23%
Same	0%	34%	45%	21%
Down	4%	30%	50%	17%
HOMES/BUS./REC				
Within 500 feet	7%	30%	43%	20%
Not Near	2%	32%	43%	23%
VISIBLE POL.				
Yes	4%	29%	43%	23%
No	7%	33%	42%	18%
PUB. ENV. PROB.				
Yes	3%	31%	41%	25%
No	7%	30%	44%	19%
PUBLIC INTEREST				
Increased	7%	37%	32%	25%
Same	4%	29%	47%	19%
Decreased	11%	26%	37%	26%
PUB. AFF. STAFF				
Yes	2%	30%	49%	19%
No	6%	30%	42%	22%
COMMUNICATIONS				
Increased	4%	33%	44%	19%
Same/Decreased	7%	28%	41%	23%

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A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 85:
ENVIRONMENTAL LAWS HAVE CAUSED NEEDLESS CONCERN

	Caused Needless Public Concern			
	Agree Strongly	Agree Somewhat	Disagree Somewhat	Disagree Strongly
Total Sample	26%	55%	16%	3%
INDUSTRY				
Pulp & Paper	30%	50%	17%	4%
Chemical	23%	61%	13%	3%
Refinery/Petro.	28%	45%	25%	3%
# OF EMPLOYEES				
Less than 50	26%	55%	14%	5%
51 to 200	24%	57%	18%	1%
More than 200	29%	52%	15%	3%
BUSINESS CHANGE				
Up	23%	57%	16%	3%
Same	24%	52%	20%	4%
Down	34%	54%	11%	2%
HOMES/BUS./REC				
Within 500 feet	25%	56%	17%	3%
Not Near	29%	54%	14%	4%
VISIBLE POL.				
Yes	29%	50%	19%	2%
No	22%	62%	12%	5%
PUB. ENV. PROB.				
Yes	27%	51%	20%	2%
No	26%	57%	13%	4%
PUBLIC INTEREST				
Increased	23%	58%	17%	2%
Same	26%	54%	17%	3%
Decreased	42%	37%	11%	11%
PUB. AFF. STAFF				
Yes	30%	49%	21%	0%
No	25%	57%	15%	3%
COMMUNICATIONS				
Increased	24%	58%	14%	4%
Same/Decreased	28%	52%	18%	3%

Sec.VIII, Q.#1: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 86:
ENVIRONMENTAL LAWS HAVE REDUCED COMMUNITY RISKS

	Reduced Community Risks			
	Agree Strongly	Agree Somewhat	Disagree Somewhat	Disagree Strongly
Total Sample	12%	52%	29%	7%
INDUSTRY				
Pulp & Paper	11%	50%	35%	4%
Chemical	14%	54%	25%	8%
Refinery/Petro.	8%	50%	35%	8%
# OF EMPLOYEES				
Less than 50	10%	53%	34%	4%
51 to 200	15%	50%	26%	9%
More than 200	11%	54%	28%	8%
BUSINESS CHANGE				
Up	14%	57%	23%	7%
Same	8%	43%	42%	8%
Down	11%	51%	33%	5%
HOMES/BUS./REC				
Within 500 feet	12%	56%	26%	6%
Not Near	11%	45%	35%	9%
VISIBLE POL.				
Yes	12%	53%	30%	5%
No	11%	51%	29%	10%
PUB. ENV. PROB.				
Yes	8%	53%	33%	6%
No	14%	51%	28%	7%
PUBLIC INTEREST				
Increased	15%	48%	30%	7%
Same	9%	56%	29%	6%
Decreased	21%	32%	37%	11%
PUB. AFF. STAFF				
Yes	7%	49%	35%	9%
No	13%	52%	28%	6%
COMMUNICATIONS				
Increased	13%	50%	30%	6%
Same/Decreased	10%	54%	28%	8%

Sec.VIII, Q.#1: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 87:
ENVIRONMENTAL LAWS HAVE INCREASED PRODUCTION COSTS

	Increased Production Costs			
	Agree Strongly	Agree Somewhat	Disagree Somewhat	Disagree Strongly
Total Sample	50%	41%	8%	0%
INDUSTRY				
Pulp & Paper	46%	39%	13%	2%
Chemical	51%	44%	6%	0%
Refinery/Petro.	55%	34%	11%	0%
# OF EMPLOYEES				
Less than 50	59%	32%	7%	1%
51 to 200	42%	49%	9%	0%
More than 200	48%	43%	9%	0%
BUSINESS CHANGE				
Up	45%	45%	10%	1%
Same	50%	43%	7%	0%
Down	61%	31%	7%	0%
HOMES/BUS./REC				
Within 500 feet	46%	46%	8%	0%
Not Near	57%	33%	10%	1%
VISIBLE POL.				
Yes	52%	40%	8%	0%
No	46%	43%	10%	1%
PUB. ENV. PROB.				
Yes	58%	32%	10%	0%
No	43%	48%	8%	1%
PUBLIC INTEREST				
Increased	55%	38%	7%	0%
Same	46%	42%	11%	1%
Decreased	58%	42%	0%	0%
PUB. AFF. STAFF				
Yes	45%	40%	14%	0%
No	51%	42%	7%	1%
COMMUNICATIONS				
Increased	47%	43%	8%	1%
Same/Decreased	53%	38%	9%	0%

Sec.VIII, Q.#1: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 88:
ENVIRONMENTAL LAWS HAVE DOWNGRADED MORE IMPORTANT ENVIRONMENTAL PRIORITIES

	Downgraded Other Environmental Priorities			
	Agree Strongly	Agree Somewhat	Disagree Somewhat	Disagree Strongly
Total Sample	24%	35%	35%	6%
INDUSTRY				
Pulp & Paper	31%	26%	35%	7%
Chemical	20%	40%	33%	7%
Refinery/Petro.	28%	33%	38%	3%
# OF EMPLOYEES				
Less than 50	23%	35%	32%	10%
51 to 200	13%	36%	47%	4%
More than 200	35%	34%	26%	5%
BUSINESS CHANGE				
Up	20%	31%	42%	7%
Same	26%	39%	30%	6%
Down	28%	41%	26%	6%
HOMES/BUS./REC				
Within 500 feet	26%	35%	37%	3%
Not Near	20%	37%	32%	12%
VISIBLE POL.				
Yes	28%	3%	33%	7%
No	17%	39%	38%	6%
PUB. ENV. PROB.				
Yes	32%	35%	28%	5%
No	17%	36%	39%	7%
PUBLIC INTEREST				
Increased	27%	43%	22%	8%
Same	20%	35%	40%	4%
Decreased	37%	11%	37%	16%
PUB. AFF. STAFF				
Yes	35%	30%	28%	7%
No	20%	37%	36%	6%
COMMUNICATIONS				
Increased	25%	36%	30%	9%
Same/Decreased	22%	35%	39%	3%

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Percentages based on all surveyed respondents.

Table 89:
ENVIRONMENTAL LAWS HAVE ALLOWED FACILITY TO IMPROVE ENVIRONMENTAL PROTECTION WHILE REMAINING COMPETITIVE

	Improved without Hurting Competitiveness			
	Agree Strongly	Agree Somewhat	Disagree Somewhat	Disagree Strongly
Total Sample	4%	27%	50%	20%
INDUSTRY				
Pulp & Paper	2%	26%	49%	23%
Chemical	5%	26%	49%	20%
Refinery/Petro.	3%	30%	53%	15%
# OF EMPLOYEES				
Less than 50	6%	23%	51%	20%
51 to 200	5%	34%	47%	13%
More than 200	0%	25%	50%	25%
BUSINESS CHANGE				
Up	8%	26%	51%	16%
Same	0%	35%	46%	19%
Down	0%	22%	50%	28%
HOMES/BUS./REC				
Within 500 feet	4%	27%	52%	18%
Not Near	5%	28%	46%	22%
VISIBLE POL.				
Yes	1%	23%	55%	20%
No	8%	34%	41%	16%
PUB. ENV. PROB.				
Yes	2%	21%	50%	27%
No	5%	33%	49%	13%
PUBLIC INTEREST				
Increased	5%	24%	49%	22%
Same	4%	28%	52%	16%
Decreased	0%	42%	26%	32%
PUB. AFF. STAFF				
Yes	2%	17%	55%	26%
No	4%	30%	48%	17%
COMMUNICATIONS				
Increased	3%	27%	52%	18%
Same/Decreased	5%	28%	47%	20%

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Percentages based on all surveyed respondents.

Table 90:
ENVIRONMENTAL LAWS HAVE IMPROVED FACILITY'S COMMUNITY IMAGE

	Improved Community Image			
	Agree Strongly	Agree Somewhat	Disagree Somewhat	Disagree Strongly
Total Sample	6%	45%	35%	14%
INDUSTRY				
Pulp & Paper	4%	48%	35%	13%
Chemical	7%	44%	37%	12%
Refinery/Petro.	8%	45%	28%	20%
# OF EMPLOYEES				
Less than 50	7%	46%	35%	12%
51 to 200	8%	49%	29%	14%
More than 200	3%	43%	38%	15%
BUSINESS CHANGE				
Up	11%	50%	31%	8%
Same	0%	43%	33%	24%
Down	2%	40%	42%	16%
HOMES/BUS./REC				
Within 500 feet	6%	49%	33%	11%
Not Near	6%	40%	36%	18%
VISIBLE POL.				
Yes	5%	43%	35%	17%
No	8%	49%	34%	8%
PUB. ENV. PROB.				
Yes	2%	51%	34%	13%
No	9%	41%	35%	14%
PUBLIC INTEREST				
Increased	10%	52%	23%	15%
Same	6%	41%	41%	13%
Decreased	0%	63%	21%	16%
PUB. AFF. STAFF				
Yes	5%	44%	37%	14%
No	7%	46%	34%	13%
COMMUNICATIONS				
Increased	6%	49%	30%	15%
Same/Decreased	7%	43%	37%	13%

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Percentages based on all surveyed respondents.

Table 91:
EFFECTIVENESS OF SUPERFUND (CERCLA)

	Superfund (CERCLA)			
	Very Effective	Somewhat Effective	Not Very Effective	Not Effective at All
Total Sample	5%	35%	39%	21%
INDUSTRY				
Pulp & Paper	2%	41%	35%	22%
Chemical	6%	32%	42%	20%
Refinery/Petro.	5%	38%	31%	26%
# OF EMPLOYEES				
Less than 50	2%	33%	39%	26%
51 to 200	5%	36%	38%	20%
More than 200	8%	34%	39%	19%
BUSINESS CHANGE				
Up	5%	38%	39%	18%
Same	4%	33%	41%	22%
Down	6%	30%	34%	30%
HOMES/BUS./REC				
Within 500 feet	5%	37%	38%	20%
Not Near	5%	31%	39%	25%
VISIBLE POL.				
Yes	5%	29%	42%	24%
No	5%	43%	34%	18%
PUB. ENV. PROB.				
Yes	5%	30%	41%	23%
No	4%	38%	37%	22%
PUBLIC INTEREST				
Increased	9%	38%	34%	19%
Same	3%	35%	40%	22%
Decreased	5%	26%	42%	26%
PUB. AFF. STAFF				
Yes	10%	43%	36%	12%
No	3%	33%	40%	24%
COMMUNICATIONS				
Increased	6%	37%	38%	19%
Same/Decreased	4%	32%	39%	24%

Sec.VIII, Q.#2: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 92:
EFFECTIVENESS OF SARA TITLE III

	SARA Title III			
	Very Effective	Somewhat Effective	Not Very Effective	Not Effective at All
Total Sample	17%	48%	25%	10%
INDUSTRY				
Pulp & Paper	13%	53%	25%	9%
Chemical	15%	50%	26%	10%
Refinery/Petro.	26%	36%	26%	13%
# OF EMPLOYEES				
Less than 50	11%	49%	25%	14%
51 to 200	19%	53%	20%	8%
More than 200	22%	38%	32%	8%
BUSINESS CHANGE				
Up	19%	51%	21%	9%
Same	13%	50%	31%	6%
Down	15%	38%	29%	18%
HOMES/BUS./REC				
Within 500 feet	17%	49%	27%	8%
Not Near	16%	46%	23%	15%
VISIBLE POL.				
Yes	17%	44%	29%	9%
No	15%	54%	19%	12%
PUB. ENV. PROB.				
Yes	13%	43%	35%	9%
No	19%	51%	18%	12%
PUBLIC INTEREST				
Increased	27%	39%	31%	3%
Same	12%	53%	23%	13%
Decreased	21%	42%	26%	11%
PUB. AFF. STAFF				
Yes	19%	44%	28%	9%
No	16%	48%	26%	11%
COMMUNICATIONS				
Increased	18%	43%	28%	11%
Same/Decreased	15%	51%	24%	10%

Sec.VIII, Q.#2: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 93:
EFFECTIVENESS OF RCRA (HAZARDOUS WASTE CONTROL LAW)

	RCRA (Hazardous Waste Control Law)			
	Very Effective	Somewhat Effective	Not Very Effective	Not Effective at All
Total Sample	19%	58%	17%	6%
INDUSTRY				
Pulp & Paper	17%	58%	21%	4%
Chemical	20%	59%	15%	6%
Refinery/Petro.	21%	54%	21%	5%
# OF EMPLOYEES				
Less than 50	16%	60%	16%	9%
51 to 200	19%	57%	19%	5%
More than 200	25%	55%	17%	3%
BUSINESS CHANGE				
Up	24%	59%	12%	5%
Same	19%	55%	23%	4%
Down	11%	58%	22%	9%
HOMES/BUS./REC				
Within 500 feet	20%	56%	18%	5%
Not Near	18%	60%	15%	8%
VISIBLE POL.				
Yes	17%	57%	21%	5%
No	22%	60%	11%	7%
PUB. ENV. PROB.				
Yes	17%	56%	19%	8%
No	20%	59%	16%	5%
PUBLIC INTEREST				
Increased	22%	61%	12%	5%
Same	19%	57%	17%	7%
Decreased	11%	47%	37%	5%
PUB. AFF. STAFF				
Yes	26%	56%	14%	5%
No	18%	58%	18%	6%
COMMUNICATIONS				
Increased	18%	58%	16%	8%
Same/Decreased	21%	57%	18%	4%

Sec.VIII, Q.#2: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 94:
EFFECTIVENESS OF CLEAN AIR ACT

	Clean Air Act			
	Very Effective	Somewhat Effective	Not Very Effective	Not Effective at All
Total Sample	8%	60%	25%	6%
INDUSTRY				
Pulp & Paper	10%	58%	31%	2%
Chemical	8%	56%	27%	9%
Refinery/Petro.	8%	77%	10%	5%
# OF EMPLOYEES				
Less than 50	6%	53%	30%	11%
51 to 200	4%	70%	19%	7%
More than 200	16%	59%	23%	2%
BUSINESS CHANGE				
Up	6%	60%	27%	7%
Same	6%	69%	20%	6%
Down	15%	56%	22%	7%
HOMES/BUS./REC				
Within 500 feet	9%	60%	26%	6%
Not Near	7%	63%	22%	7%
VISIBLE POL.				
Yes	9%	60%	27%	4%
No	6%	63%	20%	11%
PUB. ENV. PROB.				
Yes	9%	61%	23%	8%
No	7%	61%	25%	6%
PUBLIC INTEREST				
Increased	7%	66%	24%	3%
Same	6%	60%	25%	8%
Decreased	21%	53%	21%	5%
PUB. AFF. STAFF				
Yes	14%	74%	10%	2%
No	6%	59%	27%	8%
COMMUNICATIONS				
Increased	10%	62%	23%	5%
Same/Decreased	7%	60%	25%	8%

Sec.VIII, Q.#2: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 95:
EFFECTIVENESS OF CLEAN WATER ACT

	Clean Water Act			
	Very Effective	Somewhat Effective	Not Very Effective	Not Effective at All
Total Sample	13%	57%	23%	7%
INDUSTRY				
Pulp & Paper	20%	51%	24%	6%
Chemical	11%	57%	25%	7%
Refinery/Petro.	13%	67%	15%	5%
# OF EMPLOYEES				
Less than 50	11%	52%	29%	8%
51 to 200	8%	64%	18%	10%
More than 200	22%	56%	20%	2%
BUSINESS CHANGE				
Up	11%	61%	22%	6%
Same	13%	57%	22%	7%
Down	19%	50%	24%	7%
HOMES/BUS./REC				
Within 500 feet	15%	58%	21%	6%
Not Near	10%	56%	25%	9%
VISIBLE POL.				
Yes	13%	59%	22%	6%
No	13%	54%	24%	8%
PUB. ENV. PROB.				
Yes	14%	58%	21%	8%
No	12%	57%	25%	6%
PUBLIC INTEREST				
Increased	16%	59%	21%	5%
Same	11%	58%	23%	8%
Decreased	21%	47%	26%	5%
PUB. AFF. STAFF				
Yes	19%	67%	12%	2%
No	11%	56%	25%	8%
COMMUNICATIONS				
Increased	16%	57%	22%	5%
Same/Decreased	11%	57%	23%	9%

Sec.VIII, Q.#2: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 96:
INCREASED OUR COMMUNITY INFORMATION ACTIVITIES
BECAUSE OF SARA TITLE III

	Increased Community Information Activities			
	Agree Strongly	Agree Somewhat	Disagree Somewhat	Disagree Strongly
Total Sample	5%	45%	33%	18%
INDUSTRY				
Pulp & Paper	2%	43%	41%	15%
Chemical	5%	49%	27%	19%
Refinery/Petro.	8%	34%	39%	18%
# OF EMPLOYEES				
Less than 50	0%	38%	34%	28%
51 to 200	4%	47%	35%	14%
More than 200	11%	53%	25%	11%
BUSINESS CHANGE				
Up	3%	43%	41%	13%
Same	4%	50%	20%	26%
Down	7%	45%	25%	22%
HOMES/BUS./REC				
Within 500 feet	5%	51%	29%	16%
Not Near	4%	36%	38%	23%
VISIBLE POL.				
Yes	7%	47%	31%	15%
No	1%	41%	33%	24%
PUB. ENV. PROB.				
Yes	8%	52%	26%	14%
No	2%	39%	37%	22%
PUBLIC INTEREST				
Increased	9%	64%	22%	5%
Same	3%	38%	38%	21%
Decreased	5%	37%	26%	32%
PUB. AFF. STAFF				
Yes	12%	45%	33%	10%
No	3%	45%	32%	20%
COMMUNICATIONS				
Increased	9%	56%	27%	8%
Same/Decreased	1%	35%	37%	28%

Sec.VIII, Q.#3: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 97:
FOCUS ON WORKER SAFETY BECAUSE OF SARA TITLE III

	Worker Safety is More Important			
	Agree Strongly	Agree Somewhat	Disagree Somewhat	Disagree Strongly
Total Sample	41%	37%	12%	9%
INDUSTRY				
Pulp & Paper	43%	46%	9%	2%
Chemical	45%	30%	12%	13%
Refinery/Petro.	29%	47%	18%	5%
# OF EMPLOYEES				
Less than 50	47%	37%	7%	9%
51 to 200	45%	39%	11%	5%
More than 200	30%	38%	21%	11%
BUSINESS CHANGE				
Up	42%	39%	10%	10%
Same	43%	41%	11%	6%
Down	38%	36%	18%	9%
HOMES/BUS./REC				
Within 500 feet	41%	40%	12%	8%
Not Near	41%	36%	13%	9%
VISIBLE POL.				
Yes	38%	40%	14%	8%
No	47%	35%	9%	9%
PUB. ENV. PROB.				
Yes	30%	39%	20%	10%
No	48%	38%	7%	8%
PUBLIC INTEREST				
Increased	31%	38%	21%	10%
Same	43%	40%	9%	8%
Decreased	47%	32%	11%	11%
PUB. AFF. STAFF				
Yes	27%	39%	20%	15%
No	45%	37%	11%	7%
COMMUNICATIONS				
Increased	35%	34%	19%	12%
Same/Decreased	46%	42%	6%	6%

Sec.VIII, Q.#3: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 98:
CHANGED PRODUCTION PROCESSES BECAUSE OF SARA TITLE III

	Changed Production Processes			
	Agree Strongly	Agree Somewhat	Disagree Somewhat	Disagree Strongly
Total Sample	14%	41%	27%	18%
INDUSTRY				
Pulp & Paper	19%	37%	31%	13%
Chemical	13%	46%	22%	19%
Refinery/Petro.	13%	29%	37%	21%
# OF EMPLOYEES				
Less than 50	8%	50%	20%	22%
51 to 200	22%	35%	31%	12%
More than 200	16%	38%	30%	17%
BUSINESS CHANGE				
Up	16%	41%	28%	16%
Same	13%	48%	24%	15%
Down	14%	38%	25%	23%
HOMES/BUS./REC				
Within 500 feet	13%	43%	29%	15%
Not Near	18%	40%	21%	21%
VISIBLE POL.				
Yes	12%	40%	30%	18%
No	19%	44%	20%	16%
PUB. ENV. PROB.				
Yes	10%	38%	36%	17%
No	18%	45%	20%	18%
PUBLIC INTEREST				
Increased	9%	45%	29%	17%
Same	17%	43%	26%	15%
Decreased	16%	32%	21%	32%
PUB. AFF. STAFF				
Yes	5%	40%	43%	12%
No	17%	42%	23%	19%
COMMUNICATIONS				
Increased	14%	39%	29%	18%
Same/Decreased	16%	43%	24%	17%

Sec.VIII, Q.#3: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 99:
MORE ATTENTIVE TO HAZARDOUS SUBSTANCES
BECAUSE OF SARA TITLE III

	More Attentive to Hazardous Substances			
	Agree Strongly	Agree Somewhat	Disagree Somewhat	Disagree Strongly
Total Sample	46%	38%	10%	6%
INDUSTRY				
Pulp & Paper	52%	39%	4%	6%
Chemical	44%	36%	13%	6%
Refinery/Petro.	45%	42%	8%	5%
# OF EMPLOYEES				
Less than 50	47%	38%	10%	5%
51 to 200	50%	38%	8%	4%
More than 200	42%	36%	13%	9%
BUSINESS CHANGE				
Up	49%	33%	10%	9%
Same	46%	39%	11%	4%
Down	41%	46%	11%	2%
HOMES/BUS./REC				
Within 500 feet	44%	42%	9%	6%
Not Near	51%	31%	13%	6%
VISIBLE POL.				
Yes	44%	39%	12%	5%
No	50%	35%	8%	7%
PUB. ENV. PROB.				
Yes	30%	50%	12%	8%
No	58%	29%	8%	5%
PUBLIC INTEREST				
Increased	34%	47%	12%	7%
Same	53%	35%	7%	5%
Decreased	37%	32%	21%	11%
PUB. AFF. STAFF				
Yes	38%	31%	21%	10%
No	49%	38%	8%	5%
COMMUNICATIONS				
Increased	43%	38%	12%	8%
Same/Decreased	49%	38%	9%	4%

Sec.VIII, Q.#3: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 100:
ELIMINATED USE OF SUBSTANCES BECAUSE OF SARA TITLE III

	Eliminated Substances			
	Agree Strongly	Agree Somewhat	Disagree Somewhat	Disagree Strongly
Total Sample	29%	28%	22%	21%
INDUSTRY				
Pulp & Paper	37%	33%	15%	15%
Chemical	26%	23%	27%	24%
Refinery/Petro.	29%	34%	16%	21%
# OF EMPLOYEES				
Less than 50	27%	22%	27%	24%
51 to 200	31%	31%	20%	18%
More than 200	31%	30%	20%	19%
BUSINESS CHANGE				
Up	32%	27%	22%	19%
Same	35%	35%	13%	17%
Down	18%	21%	34%	27%
HOMES/BUS./REC				
Within 500 feet	29%	29%	24%	19%
Not Near	31%	26%	20%	24%
VISIBLE POL.				
Yes	28%	28%	23%	21%
No	32%	26%	23%	19%
PUB. ENV. PROB.				
Yes	20%	34%	27%	19%
No	35%	22%	20%	22%
PUBLIC INTEREST				
Increased	19%	40%	22%	19%
Same	32%	25%	22%	21%
Decreased	37%	11%	32%	21%
PUB. AFF. STAFF				
Yes	29%	31%	24%	17%
No	29%	27%	23%	21%
COMMUNICATIONS				
Increased	28%	21%	26%	24%
Same/Decreased	30%	33%	20%	18%

Sec.VIII, Q.#3: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 101:
REDUCED USE OF SUBSTANCES BECAUSE OF SARA TITLE III

	Reduced Use of Substances			
	Agree Strongly	Agree Somewhat	Disagree Somewhat	Disagree Strongly
Total Sample	30%	36%	17%	17%
INDUSTRY				
Pulp & Paper	39%	46%	6%	9%
Chemical	26%	32%	23%	19%
Refinery/Petro.	32%	38%	11%	19%
# OF EMPLOYEES				
Less than 50	26%	35%	16%	23%
51 to 200	35%	34%	19%	12%
More than 200	35%	40%	14%	11%
BUSINESS CHANGE				
Up	37%	37%	14%	13%
Same	31%	41%	11%	17%
Down	20%	31%	27%	22%
HOMES/BUS./REC				
Within 500 feet	33%	40%	13%	14%
Not Near	28%	31%	22%	19%
VISIBLE POL.				
Yes	29%	38%	17%	15%
No	34%	33%	16%	17%
PUB. ENV. PROB.				
Yes	27%	35%	21%	17%
No	35%	35%	14%	16%
PUBLIC INTEREST				
Increased	28%	35%	18%	19%
Same	30%	39%	16%	15%
Decreased	53%	11%	21%	16%
PUB. AFF. STAFF				
Yes	39%	34%	17%	10%
No	29%	37%	16%	18%
COMMUNICATIONS				
Increased	28%	32%	21%	19%
Same/Decreased	34%	38%	13%	14%

Sec.VIII, Q.#3: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 102:
INCREASED MEDIA INTEREST BECAUSE OF SARA TITLE III

	Increased Media Interest			
	Agree Strongly	Agree Somewhat	Disagree Somewhat	Disagree Strongly
Total Sample	8%	21%	42%	30%
INDUSTRY				
Pulp & Paper	9%	20%	46%	24%
Chemical	7%	22%	38%	33%
Refinery/Petro.	8%	16%	47%	29%
# OF EMPLOYEES				
Less than 50	1%	15%	38%	45%
51 to 200	7%	26%	45%	23%
More than 200	17%	25%	41%	17%
BUSINESS CHANGE				
Up	6%	17%	46%	30%
Same	11%	28%	37%	24%
Down	7%	23%	36%	34%
HOMES/BUS./REC				
Within 500 feet	7%	24%	41%	28%
Not Near	8%	18%	41%	33%
VISIBLE POL.				
Yes	12%	26%	41%	21%
No	1%	14%	42%	43%
PUB. ENV. PROB.				
Yes	14%	32%	36%	18%
No	2%	13%	46%	39%
PUBLIC INTEREST				
Increased	17%	36%	34%	12%
Same	3%	15%	46%	36%
Decreased	5%	21%	37%	37%
PUB. AFF. STAFF				
Yes	19%	29%	33%	19%
No	5%	19%	44%	32%
COMMUNICATIONS				
Increased	12%	30%	41%	17%
Same/Decreased	4%	13%	42%	41%

Sec.VIII, Q.#3: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 103:
INCREASED ACTIVIST INTEREST BECAUSE OF SARA TITLE III

	Environmental Activists Interest			
	Agree Strongly	Agree Somewhat	Disagree Somewhat	Disagree Strongly
Total Sample	8%	20%	44%	28%
INDUSTRY				
Pulp & Paper	13%	20%	41%	26%
Chemical	6%	20%	44%	30%
Refinery/Petro.	8%	18%	47%	26%
# OF EMPLOYEES				
Less than 50	1%	12%	43%	44%
51 to 200	8%	22%	47%	23%
More than 200	16%	30%	41%	14%
BUSINESS CHANGE				
Up	5%	19%	48%	28%
Same	7%	28%	43%	22%
Down	13%	14%	38%	36%
HOMES/BUS./REC				
Within 500 feet	7%	21%	45%	26%
Not Near	8%	18%	42%	32%
VISIBLE POL.				
Yes	12%	28%	37%	23%
N^	1%	7%	55%	38%
P'B. ENV. PROB.				
Yes	16%	29%	38%	18%
No	1%	14%	48%	37%
PUBLIC INTEREST				
Increased	17%	36%	34%	12%
Same	2%	12%	51%	35%
Decreased	11%	32%	26%	32%
PUB. AFF. STAFF				
Yes	19%	33%	36%	12%
No	5%	17%	45%	33%
COMMUNICATIONS				
Increased	13%	30%	44%	14%
Same/Decreased	3%	12%	43%	42%

Sec.VIII, Q.#3: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 104:
PUBLIC HAS BEEN APATHETIC TO SARA TITLE III

	Public Apathy			
	Agree Strongly	Agree Somewhat	Disagree Somewhat	Disagree Strongly
Total Sample	33%	46%	13%	8%
INDUSTRY				
Pulp & Paper	24%	56%	15%	6%
Chemical	36%	44%	11%	9%
Refinery/Petro.	35%	41%	14%	11%
# OF EMPLOYEES				
Less than 50	42%	38%	9%	11%
51 to 200	28%	51%	15%	5%
More than 200	25%	52%	13%	10%
BUSINESS CHANGE				
Up	33%	47%	12%	9%
Same	26%	50%	15%	9%
Down	39%	43%	11%	7%
HOMES/BUS./REC				
Within 500 feet	33%	45%	13%	9%
Not Near	32%	49%	11%	8%
VISIBLE POL.				
Yes	34%	46%	14%	7%
No	31%	48%	9%	11%
PUB. ENV. PROB.				
Yes	40%	40%	11%	9%
No	28%	51%	13%	9%
PUBLIC INTEREST				
Increased	28%	43%	21%	9%
Same	34%	50%	10%	6%
Decreased	42%	32%	0%	26%
PUB. AFF. STAFF				
Yes	21%	50%	14%	14%
No	35%	46%	11%	7%
COMMUNICATIONS				
Increased	31%	49%	13%	7%
Same/Decreased	34%	45%	12%	10%

Sec.VIII, Q.#3: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 105:
PERCENTAGE OF OPERATING COSTS SPENT COMMUNICATING WITH PUBLIC

	% of Oper. Costs Spent on Communication			
	Less than .5%	.5% to 1%	1% to 2%	More than 2%
Total Sample	87%	9%	2%	1%
INDUSTRY				
Pulp & Paper	88%	10%	0%	2%
Chemical	87%	10%	2%	1%
Refinery/Petro.	86%	6%	6%	3%
# OF EMPLOYEES				
Less than 50	95%	4%	1%	0%
51 to 200	83%	11%	4%	1%
More than 200	82%	13%	2%	3%
BUSINESS CHANGE				
Up	84%	12%	3%	2%
Same	94%	4%	2%	0%
Down	88%	8%	2%	2%
HOMES/BUS./REC				
Within 500 feet	85%	12%	1%	1%
Not Near	91%	4%	4%	1%
VISIBLE POL.				
Yes	88%	9%	1%	2%
No	86%	8%	5%	1%
PUB. ENV. PROB.				
Yes	88%	10%	0%	1%
No	86%	8%	4%	2%
PUBLIC INTEREST				
Increased	80%	14%	2%	4%
Same	90%	6%	3%	1%
Decreased	83%	17%	0%	0%
PUB. AFF. STAFF				
Yes	83%	15%	0%	3%
No	88%	8%	3%	1%
COMMUNICATIONS				
Increased	82%	11%	4%	3%
Same/Decreased	92%	7%	1%	0%

Sec.VIII, Q.#4: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 106:
NUMBER OF EMPLOYEES AT FACILITY

	Number of Employees		
	Less than 50	51 to 200	More than 200
Total Sample	38%	32%	30%
INDUSTRY			
Pulp & Paper	9%	33%	57%
Chemical	50%	32%	18%
Refinery/Petro.	41%	31%	28%
BUSINESS CHANGE			
Up	38%	38%	25%
Same	33%	31%	35%
Down	43%	27%	30%
HOMES/BUS./REC			
Within 500 feet	36%	33%	31%
Not Near	41%	34%	25%
VISIBLE POL.			
Yes	28%	33%	39%
No	54%	34%	11%
PUB. ENV. PROB.			
Yes	25%	37%	38%
No	47%	32%	22%
PUBLIC INTEREST			
Increased	18%	35%	47%
Same	43%	35%	22%
Decreased	58%	21%	21%
PUB. AFF. STAFF			
Yes	9%	7%	84%
No	44%	41%	15%
COMMUNICATIONS			
Increased	24%	33%	43%
Same/Decreased	50%	34%	16%

Sec.X, Q.#2: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 107:
CHANGE IN FACILITY'S BUSINESS IN LAST FIVE YEARS

	BUSINESS CHANGE		
	Up	Same	Down
Total Sample	52%	24%	24%
INDUSTRY			
Pulp & Paper	43%	28%	30%
Chemical	57%	21%	22%
Refinery/Petro.	53%	25%	23%
# of EMPLOYEES			
Less than 50	51%	21%	28%
51 to 200	58%	22%	20%
More than 200	45%	29%	26%
HOMES/BUS./REC			
Within 500 feet	55%	27%	18%
Not Near	46%	19%	35%
VISIBLE POL.			
Yes	50%	27%	22%
No	53%	18%	28%
PUB. ENV. PROB.			
Yes	49%	26%	25%
No	53%	23%	24%
PUBLIC INTEREST			
Increased	45%	35%	20%
Same	56%	21%	23%
Decreased	42%	11%	47%
PUB. AFF. STAFF			
Yes	49%	28%	23%
No	54%	22%	24%
COMMUNICATIONS			
Increased	53%	25%	22%
Same/Decreased	52%	22%	27%

Sec.X, Q.#3: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 108:
ENVIRONMENTAL PROBLEMS EXPERIENCED IN PAST FIVE YEARS

	Specific Environmental Problems				
	Notice of Violation	Reportable Haz. Waste Spill	Difficulty Obtaining Permits	Reportable Air Toxics Release	Implement RCRA Corrective Action
Total Sample	47%	24%	23%	20%	13%
INDUSTRY					
Pulp & Paper	52%	17%	27%	31%	8%
Chemical	42%	26%	18%	14%	14%
Refinery/Petro.	55%	25%	30%	25%	18%
# of EMPLOYEES					
Less than 50	32%	18%	14%	7%	8%
51 to 200	50%	19%	14%	14%	7%
More than 200	59%	38%	44%	44%	28%
BUSINESS CHANGE					
Up	43%	25%	21%	19%	16%
Same	45%	23%	25%	19%	9%
Down	54%	22%	22%	22%	11%
HOMES/BUS./REC					
Within 500 feet	50%	26%	24%	26%	11%
Not Near	39%	19%	19%	10%	17%
VISIBLE POL.					
Yes	55%	28%	28%	29%	18%
No	32%	15%	14%	5%	6%
PUB. ENV. PROB.					
Yes	70%	38%	39%	36%	24%
No	29%	13%	10%	8%	6%
PUBLIC INTEREST					
Increased	68%	35%	40%	35%	23%
Same	36%	18%	14%	12%	9%
Decreased	53%	32%	32%	32%	11%
PUB. AFF. STAFF					
Yes	57%	38%	40%	48%	29%
No	43%	20%	18%	13%	10%
COMMUNICATIONS					
Increased	52%	32%	30%	31%	21%
Same/Decreased	41%	17%	16%	10%	7%

Sec.X, Q.#4: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents; multiple responses.

(continued)

Table 108:
ENVIRONMENTAL PROBLEMS EXPERIENCED IN PAST FIVE YEARS

	Specific Environmental Problems		
	Finding TSD Facility	Designated Superfund Site	None of These
Total Sample	13%	3%	39%
INDUSTRY			
Pulp & Paper	0%	2%	35%
Chemical	14%	2%	42%
Refinery/Petro.	28%	8%	33%
# of EMPLOYEES			
Less than 50	9%	1%	55%
51 to 200	15%	4%	36%
More than 200	16%	6%	20%
BUSINESS CHANGE			
Up	11%	3%	41%
Same	19%	6%	36%
Down	11%	2%	37%
HOMES/BUS./REC			
Within 500 feet	15%	5%	32%
Not Near	10%	1%	51%
VISIBLE POL.			
Yes	15%	5%	29%
No	9%	1%	55%
PUB. ENV. PROB.			
Yes	20%	5%	12%
No	9%	2%	57%
PUBLIC INTEREST			
Increased	23%	5%	17%
Same	8%	2%	49%
Decreased	21%	11%	21%
PUB. AFF. STAFF			
Yes	14%	5%	21%
No	12%	3%	43%
COMMUNICATIONS			
Increased	17%	3%	29%
Same/Decreased	10%	4%	46%

Sec.X, Q.#4: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents; multiple responses.

Table 109:
FACILITY TRACKS TOXIC SUBSTANCES AND HAZARDOUS WASTES

	Facility Tracks Toxic Substances and Wastes	
	Yes	No
Total Sample	70%	30%
INDUSTRY		
Pulp & Paper	72%	28%
Chemical	68%	32%
Refinery/Petro.	74%	26%
# of EMPLOYEES		
Less than 50	49%	51%
51 to 200	86%	14%
More than 200	82%	18%
BUSINESS CHANGE		
Up	74%	26%
Same	70%	30%
Down	65%	35%
HOMES/BUS./REC		
Within 500 feet	72%	28%
Not Near	69%	31%
VISIBLE POL.		
Yes	72%	28%
No	69%	31%
PUB. ENV. PROB.		
Yes	78%	22%
No	66%	34%
PUBLIC INTEREST		
Increased	77%	23%
Same	70%	30%
Decreased	67%	33%
PUB. AFF. STAFF		
Yes	86%	14%
No	68%	32%
COMMUNICATIONS		
Increased	73%	27%
Same/Decreased	70%	30%

Sec.X, Q.#5: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 110:
FACILITY HAS WRITTEN POLICY SUPPORTING WASTE REDUCTION

	Written Waste Reduction Policy	
	Yes	No
Total Sample	73%	27%
INDUSTRY		
Pulp & Paper	61%	39%
Chemical	79%	21%
Refinery/Petro.	73%	28%
# of EMPLOYEES		
Less than 50	67%	33%
51 to 200	78%	22%
More than 200	77%	23%
BUSINESS CHANGE		
Up	78%	22%
Same	72%	28%
Down	65%	35%
HOMES/BUS./REC		
Within 500 feet	70%	30%
Not Near	79%	21%
VISIBLE POL.		
Yes	74%	26%
No	72%	28%
PUB. ENV. PROB.		
Yes	75%	25%
No	74%	26%
PUBLIC INTEREST		
Increased	82%	18%
Same	71%	29%
Decreased	79%	21%
PUB. AFF. STAFF		
Yes	77%	23%
No	72%	28%
COMMUNICATIONS		
Increased	76%	24%
Same/Decreased	71%	29%

Sec.X, Q.#6: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 111:
FACILITY HAS A PARENT COMPANY

	Facility Has Parent Company	
	Yes	No
Total Sample	67%	33%
INDUSTRY		
Pulp & Paper	76%	24%
Chemical	63%	37%
Refinery/Petro.	68%	33%
# of EMPLOYEES		
Less than 50	44%	56%
51 to 200	72%	28%
More than 200	91%	9%
BUSINESS CHANGE		
Up	68%	32%
Same	72%	28%
Down	61%	39%
HOMES/BUS./REC		
Within 500 feet	71%	29%
Not Near	61%	39%
VISIBLE POL.		
Yes	80%	20%
No	47%	53%
PUB. ENV. PROB.		
Yes	83%	17%
No	57%	43%
PUBLIC INTEREST		
Increased	87%	13%
Same	61%	39%
Decreased	68%	32%
PUB. AFF. STAFF		
Yes	88%	12%
No	63%	37%
COMMUNICATIONS		
Increased	79%	21%
Same/Decreased	58%	43%

Sec.X, Q.#7: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 112:
DEVELOPMENT OF WASTE MINIMIZATION POLICIES

	Development of Waste Policies				
	Developed at Parent	Developed on Site	Developed at Both	Don't Have Policy	No Parent
Total Sample	19%	33%	8%	7%	33%
INDUSTRY					
Pulp & Paper	27%	33%	4%	12%	25%
Chemical	18%	32%	7%	6%	38%
Refinery/Petro.	13%	35%	15%	5%	33%
# of EMPLOYEES					
Less than 50	16%	20%	2%	5%	56%
51 to 200	22%	41%	3%	5%	29%
More than 200	20%	40%	20%	11%	9%
BUSINESS CHANGE					
Up	23%	32%	5%	7%	33%
Same	19%	38%	8%	8%	28%
Down	11%	31%	13%	5%	40%
HOMES/BUS./REC					
Within 500 feet	20%	31%	10%	9%	30%
Not Near	19%	36%	4%	2%	39%
VISIBLE POL.					
Yes	25%	35%	11%	8%	21%
No	11%	29%	2%	4%	53%
PUB. ENV. PROB.					
Yes	23%	41%	11%	8%	17%
No	18%	27%	5%	5%	44%
PUBLIC INTEREST					
Increased	32%	38%	12%	5%	13%
Same	16%	32%	6%	6%	40%
Decreased	17%	28%	11%	11%	33%
PUB. AFF. STAFF					
Yes	19%	40%	19%	12%	12%
No	19%	32%	5%	6%	38%
COMMUNICATIONS					
Increased	24%	37%	11%	7%	21%
Same/Decreased	16%	30%	4%	7%	43%

Sec.X, Q.#8: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 113:
SPECIFIC WASTE REDUCTION GOALS
AS PART OF WASTE MINIMIZATION POLICY

	Specific Waste Reduction Goals		
	Yes	No	No Answer/ Don't Know
Total Sample	52%	38%	10%
INDUSTRY			
Pulp & Paper	50%	35%	15%
Chemical	57%	35%	8%
Refinery/Petro.	38%	53%	10%
# of EMPLOYEES			
Less than 50	44%	44%	12%
51 to 200	53%	39%	8%
More than 200	63%	26%	11%
BUSINESS CHANGE			
Up	50%	42%	8%
Same	61%	28%	11%
Down	48%	39%	13%
HOMES/BUS./REC			
Within 500 feet	51%	36%	13%
Not Near	54%	40%	6%
VISIBLE POL.			
Yes	55%	34%	11%
No	47%	44%	9%
PUB. ENV. PROB.			
Yes	55%	35%	10%
No	53%	38%	9%
PUBLIC INTEREST			
Increased	60%	35%	5%
Same	53%	36%	11%
Decreased	42%	47%	11%
PUB. AFF. STAFF			
Yes	67%	19%	14%
No	49%	43%	8%
COMMUNICATIONS			
Increased	55%	37%	8%
Same/Decreased	51%	38%	11%

Sec.X, Q.#9: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 114:
PUBLICIZED WASTE REDUCTION GOALS

	Publicized Waste Reduction Goals			
	Yes	No	No Goals	No Answer
Total Sample	17%	34%	38%	10%
INDUSTRY				
Pulp & Paper	11%	38%	36%	15%
Chemical	22%	34%	36%	8%
Refinery/Petro.	10%	28%	53%	10%
# of EMPLOYEES				
Less than 50	7%	36%	45%	12%
51 to 200	18%	34%	41%	8%
More than 200	28%	35%	26%	11%
BUSINESS CHANGE				
Up	17%	32%	42%	9%
Same	15%	44%	29%	12%
Down	16%	32%	39%	13%
HOMES/BUS./REC				
Within 500 feet	15%	36%	37%	13%
Not Near	19%	34%	41%	6%
VISIBLE POL.				
Yes	16%	39%	34%	11%
No	16%	29%	45%	9%
PUB. ENV. PROB.				
Yes	21%	34%	36%	10%
No	14%	38%	39%	9%
PUBLIC INTEREST				
Increased	29%	31%	36%	5%
Same	14%	39%	36%	11%
Decreased	5%	37%	47%	11%
PUB. AFF. STAFF				
Yes	33%	33%	19%	14%
No	12%	36%	44%	8%
COMMUNICATIONS				
Increased	25%	29%	38%	9%
Same/Decreased	9%	41%	39%	11%

Sec.X, Q.#10: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all those whose waste policy
includes specific reduction goals.

Table 115:
PERCENTAGE OF OPERATING COSTS -- POLLUTION CONTROL COSTS

	Percentage of Operations Costs Spent on Pollution Control				
	Less than 1%	1% to 3%	4% to 5%	More than 5%	No Answer/ Don't Know
Total Sample	25%	38%	12%	14%	11%
INDUSTRY					
Pulp & Paper	22%	35%	15%	13%	15%
Chemical	23%	40%	13%	13%	10%
Refinery/Petro.	38%	33%	3%	20%	8%
# of EMPLOYEES					
Less than 50	41%	31%	6%	9%	13%
51 to 200	20%	41%	17%	11%	12%
More than 200	12%	40%	14%	25%	9%
BUSINESS CHANGE					
Up	26%	40%	13%	11%	10%
Same	24%	30%	15%	20%	11%
Down	25%	39%	7%	14%	14%
HOMES/BUS./REC					
Within 500 feet	29%	34%	10%	15%	12%
Not Near	20%	42%	14%	13%	11%
VISIBLE POL.					
Yes	18%	37%	14%	19%	12%
No	38%	37%	8%	7%	10%
PUB. ENV. PROB.					
Yes	19%	33%	13%	25%	10%
No	30%	40%	11%	6%	12%
PUBLIC INTEREST					
Increased	20%	30%	13%	27%	10%
Same	29%	38%	11%	10%	12%
Decreased	11%	58%	16%	5%	11%
PUB. AFF. STAFF					
Yes	14%	44%	9%	26%	7%
No	28%	36%	13%	12%	12%
COMMUNICATIONS					
Increased	23%	32%	13%	21%	11%
Same/Decreased	28%	42%	11%	8%	11%

Sec.X, Q.#11: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 116:
LOCAL FACILITIES WITHIN 500 FEET OF PLANT

	Specific Facility				
	Homes or Apartments	Office Buildings	Wildlife, Wetlands or Nature Preserves	Parks or Recreation Areas	Schools or Day Care
Total Sample	40%	29%	19%	14%	5%
INDUSTRY					
Pulp & Paper	48%	24%	26%	22%	6%
Chemical	36%	31%	17%	11%	6%
Refinery/Petro.	43%	30%	20%	10%	5%
# of EMPLOYEES					
Less than 50	31%	34%	13%	5%	3%
51 to 200	45%	30%	17%	13%	3%
More than 200	49%	22%	34%	26%	11%
BUSINESS CHANGE					
Up	42%	34%	18%	16%	5%
Same	44%	30%	24%	15%	4%
Down	36%	20%	21%	7%	7%
VISIBLE POL.					
Yes	50%	28%	29%	17%	8%
No	26%	33%	6%	7%	1%
PUB. ENV. PROB.					
Yes	51%	33%	27%	17%	8%
No	34%	27%	15%	11%	4%
PUBLIC INTEREST					
Increased	52%	30%	23%	22%	8%
Same	38%	29%	18%	11%	4%
Decreased	37%	32%	26%	5%	5%
PUB. AFF. STAFF					
Yes	56%	23%	33%	26%	12%
No	38%	31%	17%	11%	4%
COMMUNICATIONS					
Increased	41%	25%	23%	17%	4%
Same/Decreased	42%	34%	18%	11%	7%

Rows sum to more than 100% due to multiple responses.
Sec.IX, Q.#1: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

(continued)

Table 116:
LOCAL FACILITIES WITHIN 500 FEET OF PLANT

	Specific Facility	
	Hospitals or Nursing Homes	None of These
Total Sample	1%	38%
INDUSTRY		
Pulp & Paper	4%	39%
Chemical	0%	38%
Refinery/Petro.	0%	35%
# of EMPLOYEES		
Less than 50	0%	41%
51 to 200	1%	38%
More than 200	2%	32%
BUSINESS CHANGE		
Up	2%	33%
Same	0%	30%
Down	0%	54%
VISIBLE POL.		
Yes	1%	31%
No	0%	47%
PUB. ENV. PROB.		
Yes	1%	27%
No	1%	44%
PUBLIC INTEREST		
Increased	2%	30%
Same	1%	39%
Decreased	0%	37%
PUB. AFF. STAFF		
Yes	0%	30%
No	1%	38%
COMMUNICATIONS		
Increased	1%	39%
Same/Decreased	1%	36%

Rows sum to more than 100% due to multiple responses.
Sec.IX, Q.#1: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 117:
VISIBLE ASPECTS OF PRODUCTION

	Aspects of Production				
	Odors	Plumes from Smoke-stacks	Trucks to and from Facility	Visible Water Discharge	Visible Flares Burning
Total Sample	40%	30%	26%	13%	11%
INDUSTRY					
Pulp & Paper	54%	46%	39%	31%	0%
Chemical	32%	21%	15%	6%	8%
Refinery/Petro.	50%	35%	45%	13%	35%
# of EMPLOYEES					
Less than 50	30%	10%	19%	3%	1%
51 to 200	34%	25%	25%	12%	8%
More than 200	63%	58%	41%	28%	27%
BUSINESS CHANGE					
Up	37%	26%	27%	7%	10%
Same	50%	33%	26%	26%	15%
Down	39%	29%	27%	14%	7%
HOMES/BUS./REC					
Within 500 feet	45%	35%	34%	14%	10%
Not Near	33%	18%	15%	12%	11%
PUB. ENV. PROB.					
Yes	59%	49%	28%	20%	18%
No	27%	14%	26%	8%	5%
PUBLIC INTEREST					
Increased	63%	50%	33%	23%	23%
Same	31%	19%	25%	9%	5%
Decreased	37%	32%	21%	11%	16%
PUB. AFF. STAFF					
Yes	69%	67%	43%	31%	31%
No	33%	19%	23%	9%	6%
COMMUNICATIONS					
Increased	50%	42%	30%	18%	17%
Same/Decreased	33%	17%	24%	9%	5%

Rows sum to more than 100% due to multiple responses.
Sec.IX, Q.#2: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

(continued)

Table 117:
VISIBLE ASPECTS OF PRODUCTION

	Aspects of Production
	None of These
Total Sample	39%
INDUSTRY	
Pulp & Paper	22%
Chemical	47%
Refinery/Petro.	35%
# of EMPLOYEES	
Less than 50	55%
51 to 200	39%
More than 200	16%
BUSINESS CHANGE	
Up	40%
Same	30%
Down	45%
HOMES/BUS./REC	
Within 500 feet	33%
Not Near	49%
PUB. ENV. PROB.	
Yes	23%
No	50%
PUBLIC INTEREST	
Increased	15%
Same	47%
Decreased	47%
PUB. AFF. STAFF	
Yes	12%
No	44%
COMMUNICATIONS	
Increased	30%
Same/Decreased	46%

Rows sum to more than 100% due to multiple responses.
Sec.IX, Q.#2: A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 118:
POLLUTION REDUCTION BY COMMUNICATION ACTIVITIES

	Index of Pollution Reduction					
	Reduced No Measures	Reduced on One Measure	Two Measures	Three Measures	Four Measures	Reduced all Five Measures
Total Sample	6%	12%	24%	24%	18%	16%
INDUSTRY						
Pulp & Paper	4%	13%	24%	22%	26%	11%
Chemical	7%	13%	22%	24%	14%	20%
Refinery/Petro.	8%	5%	30%	30%	18%	10%
# of EMPLOYEES						
Less than 50	13%	14%	21%	22%	10%	20%
51 to 200	5%	13%	24%	30%	18%	9%
More than 200	0%	6%	26%	23%	26%	18%
COMM. INFO. PROGRAM						
Yes	1%	10%	20%	28%	27%	14%
No	9%	13%	24%	24%	13%	17%
EMPLOYEE COMM. TRAINING						
Yes	1%	8%	27%	22%	26%	16%
No	9%	13%	21%	28%	13%	16%
PUBLICIZED REDUCTION GOALS						
Yes	0%	5%	16%	30%	27%	22%
No	1%	11%	23%	33%	13%	9%
No Goals	10%	13%	28%	20%	17%	12%
PUB. ENV. PROB.						
Yes	3%	11%	27%	31%	17%	11%
No	8%	11%	21%	21%	18%	20%
PUBLIC INTEREST						
Increased	0%	10%	25%	18%	23%	23%
Same	9%	13%	23%	27%	15%	13%
Decreased	5%	5%	16%	37%	21%	16%
PUB. AFF. STAFF						
Yes	2%	5%	33%	21%	28%	12%
No	7%	13%	21%	27%	16%	16%
COMMUNICATIONS						
Increased	2%	11%	21%	28%	24%	14%
Same/Decreased	10%	12%	26%	23%	12%	17%

Index based on number of positive responses on:
Reducing/eliminating wastes/TRI releases, or reducing stored chemicals.
A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Table 119:
DEMOGRAPHICS OF THE SURVEY SAMPLE

	Total Sample
	N = 229
INDUSTRY	
Pulp & Paper	24%
Chemical	58%
Refinery/Petro.	18%
# of EMPLOYEES	
Less than 50	38%
51 to 200	32%
More than 200	30%
BUSINESS CHANGE	
Up	52%
Same	24%
Down	24%
HOMES/BUS./REC	
Within 500 feet	62%
Not Near	38%
VISIBLE POL.	
Yes	61%
No	39%
PUB. ENV. PROB.	
Yes	42%
No	58%
PUBLIC INTEREST	
Increased	27%
Same	64%
Decreased	9%
PUB. AFF. STAFF	
Yes	19%
No	81%
COMMUNICATIONS	
Increased	47%
Same/Decreased	53%

A Study of Industry Response to SARA Title III
A survey of facility environmental and public affairs officers.
Percentages based on all surveyed respondents.

Appendix C: Questionnaire

SECTION I. HAZARDOUS RELEASES AND TOXIC RELEASES

We are interested in learning about your facility's programs to reduce the generation of hazardous wastes (sometimes called RCRA wastes) and to reduce your Toxic Release Inventory releases (sometimes called TRI or SARA 313 releases) to the environment.

I-1. Thinking first about hazardous wastes, is this facility currently generating more, about the same, or less hazardous waste in 1991 than it did five years ago?

More waste in 1991 than before	16
About the same amount in 1991 as before	20
Less waste in 1991 than before	64
Missing: 9	

I-2. Now, think about the amount of waste generated per unit of product. This is the total amount of hazardous waste divided by your total production.

How has the waste per unit of production changed over the past five years? **We realize that this may be difficult for you to determine, so just give your best estimate.**

More waste per unit of product in 1991 than before	4
About the same per unit of product in 1991 as before	21
Less waste per unit of product in 1991 than before	75
Missing: 10	

The next questions talk about your TRI releases. These are the releases you would report on the Federal SARA 313 Toxic Release Inventory.

I-3. Thinking about your TRI releases, has the total amount of these releases changed in the last five years? Did you release more, about the same, or less, of the TRI substances in 1991 than you did before?

More released in 1991 than five years before	15
About the same amount as five years before	27
Less released in 1991 than five years before	59
Missing: 5	

I-4. Now, think about your TRI releases per unit of product over the last five years. How do you think that your releases per unit of production have changed? **This may be difficult for your to determine, so just make your best estimate.**	
More released per unit of product in 1991 than five years before	1
About the same amount per unit of product in 1991 as five years before	32
Less released per unit of produce in 1991 than five years before	67
Missing: 5	

I-5. Firms have mentioned a number of different ways that they have reduced or stabilized the quantities of hazardous wastes that they generate and/or TRI releases. Which of the following, if any, has your firm used to reduce the amount of your hazardous wastes or toxic releases.	
Changed materials used, replaced a toxic or hazardous substance with one that is less toxic or non-toxic. An example is substituting a water-based paint for a solvent-based paint in an auto body shop.	65
Changed the products made in order to reduce the toxic and hazardous waste generated.	25
Changed the production processes in order to reduce the toxic and hazardous waste generated.	58
Changed housekeeping practices in order to reduce the toxic and hazardous substances released. For example, eliminating leaks, improving inventory control, improving the way the facility operates and maintains equipment.	77
We have not been able to reduce our wastes or releases.	4
Missing: 10	

I-6. Here are some reasons why your firm may have decided to try to reduce the volume of hazardous wastes generated or TRI releases. Please tell us how important each of the following were for your firm.

	Very Important	Somewhat Important	Not Very Important	Not at All Important
To improve profitability	42	40	12	6
To protect employee health	68	24	6	2
To reduce risk to community	54	33	10	3
To reduce paperwork required for reporting	16	29	42	13
To meet state/federal regulations	62	26	7	5
To reduce liability	54	33	11	2
To comply with company policy to prevent pollution	48	39	10	3
To improve relations with the community	36	38	20	6

Missing: 8

SECTION II.
HAZARDOUS WASTE NO LONGER GENERATED OR TRI SUBSTANCES NO LONGER RELEASED.

II-1. Thinking first about your hazardous wastes, are there any types of hazardous waste which your facility had in the five years prior to 1991 that you have COMPLETELY ELIMINATED and did not generate in 1991?

Yes, we have eliminated one or more wastes	53
No, we have not eliminated any wastes.	47

Missing: 7

II-2. Thinking now about your TRI substances, are there any TRI substances which the facility had in the five years prior to 1991 that you have COMPLETELY ELIMINATED and did not release in 1991?

Yes, we have eliminated TRI substance(s)	40
No, we have not eliminated any TRI substances.	60

Missing: 5

II-3. Thinking of the hazardous wastes and TRI releases the firm has eliminated, how important were the following as reasons for eliminating the waste and/or release?

	Very Important	Somewhat Important	Not very Important	Not at all Important	No Ans/ DK
We no longer make the product we used that substance for	26	11	11	50	3
We use a different formula to make the same product	31	14	10	41	5
To reduce treatment costs	20	31	19	28	3
To reduce employee health risks	55	28	7	9	2
To reduce paper work required for reporting	11	28	34	23	4
To reduce liability	41	35	12	10	2
To improve community relations	25	39	18	15	3
To meet state/EPA regulations	50	25	14	13	2
To comply with company policy to prevent pollution	43	34	13	9	1

Missing: 81

Thinking about the specific hazardous wastes you generate and TRI substances you still release, we'd like to have you answer some questions about the reasons that companies have for not being able to reduce or further reduce hazardous wastes or toxic releases.

II-4. The following list contains reasons some firms give for not reducing hazardous waste and/or toxic substance releases. Please indicate how important each reason is to not being able to further reduce hazardous wastes or toxic releases at your facility.

	Very Important	Somewhat Important	Not very Important	Not at all Important
Cost savings too small Missing: 10	12	39	31	18
Substitutes unavailable Missing: 10	70	23	5	2
Substitutes too costly Missing: 10	24	40	24	12
Waiting until time to retire existing equipment Missing: 11	3	19	36	42
Product quality may decline if we change Missing: 10	50	29	10	11
Not sure things we have heard about will work here Missing: 11	15	33	34	19

Are there any other things keeping the firm from reducing its hazardous wastes

_____

_____

_____

SECTION IV. Actions Your Facility May Have Taken to Prevent Hazardous Releases or Spills.

Here is a list of actions some facilities have taken to reduce the chances of spills or releases of hazardous substances or wastes at their facility. Has your firm done any of these things in the last five years?

IV-1. Built or added to your containment measures such as dikes, berms, etc. in the past five years?

Yes, we have added these measures	78
No, we do not need these at our facility	5
No, our containment measures were already adequate	17
Missing: 4	

IV-2. Instituted or added monitoring devices such as perimeter monitoring at the fenceline to detect releases or ambient levels?

Yes, we have instituted or added to these devices	29
No, we do not need these devices at our facility	63
No, these devices were already adequate 5 years ago	9
Missing: 5	

IV-3. Installed additional process controls to reduce hazardous wastes generated and/or TRI releases to the water or air?

Yes, we have instituted or added to these controls	70
No, these controls were already adequate five years ago	30
Missing: 7	

IV-4. Reduced the amount of chemicals that you store at your facility?

Yes	56
No	44
Missing: 3	

IV-5. Here are some statements about toxic and hazardous substance management. How strongly do you agree or disagree with the following statements?

	Agree Strongly	Agree Somewhat	Disagree Somewhat	Disagree Strongly
If we reduce our waste now, it could hurt us later if EPA issued required goals for percentage waste reductions Missing: 2	10	48	26	16
We manage some non-hazardous wastes as hazardous to avoid future liability risks Missing: 3	27	45	14	14
Unless required by regulations, it is hard to persuade management to invest in waste-minimizing innovations Missing: 2	8	25	33	35

IV-6. Please tell us how often, if at all, your facility does any of the following kinds of activities.

	Almost Always	Some-times	Hardly Ever	Never
Include waste and releases reduction considerations in the design of new or modified products or processes.	63	33	2	2
Evaluate worker health risks prior to purchase/use of new materials.	79	18	3	0
Measure annually your reductions in hazardous waste generation and toxic releases. Missing: 3	73	16	10	1

SECTION V.
COMMUNICATIONS WITH THE PUBLIC ABOUT HAZARDOUS WASTES AND TRI SUBSTANCES AND RELEASES

In this next section we would like to have you think about communications with the public about your facility's hazardous waste generation and toxic release activities. (We realize that there may be several groups in your facility that deal with the public and that some of these questions may be difficult for you to answer. Please respond as best you can to each of the following questions.)

V-1. Do you have a program for providing information to the community about plant operations and environmental issues at this facility?

Yes, we have an active community relations program	36
No, we have no special program of public communication	64
No answer/don't know	
Missing: 3	

V-2. In the past five years would you say your facility's efforts to communicate with the community have increased, decreased or stayed about the same.

Our efforts to communicate have increased	47
Our efforts to communicate have stayed about the same	52
Our efforts to communicate have decreased	1
Missing: 2	

V-3. Thinking about the past year, which, if any, of the following kinds of activities has your firm engaged in to communicate with the public?

Have you:	Yes
Organized "focus groups"	8
Done a public opinion survey	7
Held "town meetings' with the public	11
Held meetings with community leaders	36
Run advertisements in newspapers, magazines or on TV	19
Circulated newsletters	12
Formed community advisory groups	12
Invited the public to an open house or plant tour	32
Maintained a telephone "hotline"	17
Our facility has not done any of these kinds of programs	43
Missing: 13	

Are there any other kinds of communication or outreach programs your facility has implemented in the past year that you feel have been particularly effective? Please briefly describe them.

_____

_____

_____

V-4. Which of the programs that your facility has implemented do you feel have been most effective in communicating with the public?

1._____
Most effective program

2._____
Next most effective program

3._____
Third most effective program

V-5. Here is a list of reasons facilities have given for having programs of communication with the public. How important would you say each of the following factors are in influencing your firm's decision to invest in a public outreach/risk communication program?

	Very Important	Somewhat Important	Not very Important	Not at all Important	NA
The cost of communication with the public is small given the benefit of improved relations with the community.	31	37	17	4	11
Missing: 25					
Increased public scrutiny of company operations has resulted in our facility increasing our community outreach activities.	12	28	31	15	14
Publicity about past environmental problems at our facility resulted in media and environmental group attention to our TRI release reports.	5	17	29	35	14
Above 2 Missing: 26					
Communication programs help to increase our credibility with the community.	33	43	8	4	13
Communication programs help "turn around" perceptions about past environmental problems and promote good will with the community.	26	44	11	4	14
Communication efforts will lessen public demand for more stringent environmental regulations.	12	31	33	12	13
Communication about safety practices and emergency planning has made the public more frightened than they should be.	15	29	32	13	12
Above 4 Missing: 25					

V-6. Since 1987 how frequently, if ever, did you provide the following information to the public without any specific requests?

	Frequently	Seldom	Never
Information about plant operations	19	40	41
SARA Title III reporting forms	18	24	59
Facility accident/incident history	11	25	64
General chemical toxicity information (MSDS,etc.)	28	30	42
"What to do" in the event of an emergency at the plant	20	34	46
Report on environmental problems or risks at the plant site to public health or the environment	8	34	58
Report on facility efforts to reduce risk to public health or environment	13	35	52

Were there any other kinds of environmental information that you provided without specific public requests for it? Please list them.

_____

_____

_____

_____

V-7. Which, if any, of the following groups are targets for your public information programs?

	Yes
Government officials	53
Community leaders	51
Emergency responders	67
The media	27
Environmental activists	12
Health professionals	32
Educators	17
The general public	37
Our information programs are not targeted.	21

Missing: 18

(Please go to question 9.)

Are there any other groups that are targets for your public information programs?

_____

_____

V-8. In thinking about the people with whom your facility communicates, whom do you consider are the most important audiences for targeting information about your facility?

1._____
Most important group

2._____
Next most important group

3._____
Third most important group

V-9. Does your industry trade association encourage or support your efforts to communicate with the public, e.g. CMA's Responsible Care?

Yes	76
No	24
Missing: 15	

V-10. Which, if any, of the following does your industry trade group provide you with?

	Yes
Training materials for employees	48
Materials for the public	39
Media support	35
Information clearinghouses with other companies	28
No help	24
No answer	14

Missing: 82

Do they provide any other kinds of support? Please list them.

_____

_____

V-11. Have programs or materials provided through your trade association helped in developing and implementing a community outreach program at your facility?

Yes	30
No	46
No help	24
Missing: 59	

SECTION VI
COMMUNITY RESPONSES TO FACILITY OPERATIONS

In this next section we would like to ask some questions about how the community responds to this facility.

VI-1. During the past several years would you say public or media concern and interest in your facility have increased, stayed about the same, or decreased?

Interest has increased	27
Interest has stayed about the same	64
Interest has decreased	8
Missing: 7	

VI-2. Has your facility experienced any environmental problems or incidents that have received public or media attention during the past several years?

Yes	42
No, there have been none that I know of (Please go to question 4.)	58
Missing: 5	

VI-3. Briefly describe the incident(s) or problem(s).

_____

_____

VI-4. Do you think that publicity about the chemicals or hazardous substances used at your plant such as in normal production processes would cause undue community alarm?

Yes	39
No	61
Missing: 7	

VI-5. Over the past few years, has any community or activist group publicly admired environmental practices at your facility?

Yes	81
No	19
Please specify _____	
Missing: 8	

VI-6. Over the past few years, has any community or activist group publicly targeted perceived environmental problems at your facility?

Yes	21
No	79
Missing: 3	

VI-7. Over the past several years would you say that such requests from the public have increased, stayed the same, or decreased?

The number of requests has increased	17
The number of requests has stayed about the same	73
The number of requests has decreased	11
Missing: 15	

VI-8. In the past year, how often, if at all, have any of the following groups of people requested information about your facility's wastes and releases?

	Never	1-3 times	4-8 times	9 or more times
The media	69	22	6	4
Health professionals	73	21	5	1
Environmental activists	78	14	6	2
Community leaders	68	25	4	2
Educators	81	14	3	2
Emergency responders	40	49	8	3
Individual citizens	68	22	6	5

Missing: 7

Have any other groups of people requested information? Please list them and tell us how often they have requested information.

_____ About how many times?_____
Group

_____ About how many times?_____
Group

In a previous section, we asked a question about whether you had provided information to the public without being asked for it. In this question we are interested in whether the public has asked for information which you then provided.

VI-9. Over the last five years please indicate how often, if ever, the public has requested that your facility provide each of the following types of information.

	Frequently	Seldom	Never
SARA Title III reporting forms	3	19	78
Missing: 8			
Facility accident/incident history	2	14	84
Missing: 9			
General toxicity info./MSDS, etc.	11	28	61
Missing: 8			
"What to do" in an emergency	5	24	71
Missing: 8			
Reports on facility's efforts to reduce risk to public health or environment	3	15	82
Missing: 8			
Emergency response plans	7	32	62
Missing: 8			

Has the public requested any other kinds of environmental information? Please list them.

_____

_____

_____

_____

SECTION VII.
FORMAL TRAINING IN COMMUNICATION

In this next section, we would like to have you think about the facility's expectations and requirements for formal training of employees who communicate with the public about environmental risks.

VII-1. In the past year, has your facility conducted one or more training sessions for employees to improve communication with the public?

Yes	34
No (Please go to question 3)	66
Missing: 3	

VII-2. Approximately what percentage of the employees who are responsible for communicating with the public have had at least eight hours of formal training?

No training	66
Less than 30% have had formal training	19
30 to 60% have had formal training	5
More than 60% have had formal training	10
Missing 105	

VII-3. What types of employees are responsible for communicating with the public about your facility?

Plant manager	82
Facility environmental affairs staff	53
Corporate communications	53
Facility public affairs staff	19
Other technical facility staff	26
Missing: 6	

Are there any other staff at your facility who routinely communicate with the public?

_____

_____

SECTION VIII. ENVIRONMENTAL LAWS

In this section we are interested in your opinions about some of the environmental laws and regulations your facility has had to respond to over the last several years.

VIII-1. Do you agree strongly, agree somewhat, disagree somewhat, or disagree strongly that recent trends in environmental laws have

	Agree Strongly	Agree Somewhat	Disagree Somewhat	Disagree Strongly
Made the public feel safer about environmental risks	6	30	43	22
Caused needless public concern	26	55	16	3
Actually reduced community risks	12	52	29	7
Increased production costs	50	41	8	0
Caused more important environmental priorities to be downgraded	24	35	35	6
Allowed us to improve environmental protection without hurting our competitive position	4	27	50	20
Improved our community image	6	45	35	14

Missing: 3

Has there been some other effect?

_____

_____

VIII-2. Taking into consideration both the costs and benefits to your facility of meeting environmental requirements, how effective do you believe each of the following have been?

	Very Effective	Somewhat Effective	Not Very Effective	Not Effective At All
Superfund (CERCLA)	5	35	39	21
SARA Title III	17	48	25	10
RCRA (Hazardous Waste Control Law)	19	58	17	6
Clean Air Act	8	60	25	6
Clean Water Act	13	57	23	7

VIII-3. We are also interested in how your facility has responded to SARA Title III and similar state community right-to-know laws. Do you think that any of the following have happened as the result of community right-to-know laws? Do you agree strongly, agree somewhat, disagree somewhat, or disagree strongly with the following statements?

	Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree
As a result of these laws, we have greatly increased our community information activities	18	33	45	5
Worker safety in handling hazardous substances has become more important	9	12	37	41
We have changed our production processes as a result of the law	18	27	41	14
We pay more attention to the hazardous and toxic substances we use	6	10	38	46
We have eliminated use of specific chemical(s) or hazardous substances as a result of this law	21	22	28	29
We have reduced the use of a specific chemical(s) or hazardous substances as a result of this law	17	17	36	30
Media interest in our facility has increased	30	42	21	8
Environmental activists' interest in our facility has increased	28	44	20	8
Missing: 4				
The public has been generally apathetic about our SARA Title III, Section 313 reports	8	13	46	33
Missing: 5				

VIII-4. Thinking about all of your public communication activities, about what percentage of your total operating costs did your facility spend last year on communicating with the public?	
Less than 1/2 of one percent	87
1/2 to 1 percent	9
1 to 2 percent	2
More than 2 percent	1

SECTION IX. NEIGHBORHOOD OF THE FACILITY

Now we would like to have you think about the geographic area and community near your facility.

IX-1. Which, if any, of the following are close to (within 500 feet of) the facility here.

Office buildings	29
Homes or apartments	40
Schools or day care facilities	5
Hospitals or nursing homes	1
Parks or outdoor recreation areas	14
Wildlife, wetlands, or nature preserves	19
None	38

IX-2. Certain aspects of production at facility operation call attention to the facility. Which, if any, of the following are readily visible or are sensed (heard, smelled) as coming from your facility?

Plumes from your smokestack(s)	30
Odors that do not smell good	40
Visible flares burning	11
Ten or more trucks per day driving through nearby residential neighborhoods on the way to and from your facility	26
Visible water discharge into nearby streams or rivers	13
None	39

Missing: 1

SECTION X
BACKGROUND ON YOUR FACILITY AND YOUR EXPERIENCE IN ENVIRONMENTAL MANAGEMENT

These next few questions ask about the facility you work in and your experience with managing hazardous wastes and toxic releases.

X-1. What is this company's business? (For example, what products you make, what services you provide.)

_____

_____

_____

X-2. How many people are employed at your particular facility? _____

3. By how much has your facility's business changed in the last five years?

Has it:	
Fallen off dramatically?	8
Fallen off somewhat?	16
Stayed about the same?	24
Grown by up to 10%?	21
Grown by 11-25%?	14
Grown by more than 25%?	17
Missing: 1	

X-4. Which, if any, of the following environmental problems has your facility experienced in the last five years?

Been designated as an EPA or state Superfund site	3
Had difficulty finding a TSD facility to take your hazardous waste	13
Had a reportable hazardous waste spill	24
Had a reportable air toxics release	20
Been subject to an enforcement action or "notice of violation"	47
Had difficulty in obtaining environmental permits	23
Had to implement RCRA corrective action	13
None of these	39
Missing: 4	

X-5. Does your facility track toxic substances and hazardous wastes, tying the generation of specific wastes to specific production processes in the plant?	
Yes	70
No	30
Missing: 6	

X-6. Does your facility have a written policy supporting toxic and hazardous waste minimization or reduction?	
Yes	73
No	27
Missing: 3	

X-7. Does this facility have a parent company?	
Yes	67
No (Please go to question 9)	33
Missing: 1	

X-8. Where are the waste minimization policies developed -- at the parent company or at the individual facility?	
Developed at parent	19
Developed here at the facility	33
Both collaborate	8
We don't have a policy (go to question 13)	7
No parent	33

X-9. Does the firm's waste minimization policy include specific waste reduction goals?	
Yes	52
No (Please go to question 11)	38
No Answer	10
Missing: 22	

X-10. Has your facility made public its waste reduction goals?	
Yes	17
No	34
No Answer/Don't Know	10
No Goals	38
Missing: 73	

X-11. Thinking about all of your pollution abatement and waste minimization costs, about how much did your facility spend last year? Approximately what percentage of your total operating costs would you say your pollution control and minimization costs were?	
Less than 1 percent	25
1 to 3 percent	38
4 to 5 percent	12
More than 5 percent	14
No Answer/Don't Know	11
Missing: 25	