

COMMUNITY STRUCTURE AND PRESS COVERAGE OF HEALTH RISKS  
FROM ENVIRONMENTAL CONTAMINATION

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## ABSTRACT

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Abstract

**Background.** Members of the public rely on mass media as important sources of information about health risks from environmental contamination and other hazards. Our study employs multiple methods to explore the impact of community structure on the behaviors of journalists and their media organizations as they construct messages about health risks from environmental contaminants for their audiences.

Applying the conflict/consensus model of Tichenor, Donohue, and Olien, we proposed that mass media messages signalling that local agents are contaminating the local environment and posing health risks is conflict-generating information and, therefore, is controlled in the interest of community stability. Such control would be expected to vary by community structure, specifically structural diversity ("pluralism," usually associated with size) and economic reliance of the community on manufacturing.

**Method.** We conducted a three-part study, including a content analysis of nine months of coverage that 19 newspapers gave to environmental contamination, historical case studies of media coverage of three Superfund sites in Wisconsin, and a content analysis of how hundreds of daily newspapers in the Midwest covered an environmental group's 1991 news release concerning toxic releases from industries in the region, based on information from the Toxics Release Inventory (TRI).

**Results.** Our results indeed indicated that community structure affects local risk communication. While results were at times mixed, in general our study showed that media in less pluralistic (smaller) communities will tend not to carry much information about health risks stemming

from manufacturers and other local sources of environmental contamination and will tend to stress solutions to local contamination rather than related problems. Papers in communities highly reliant on manufacturing may be similarly reluctant to publish information about health risks from manufacturers.

Our research also revealed some other community structural, news organizational, and news occupational forces that appear to affect risk communication in important ways, and that point to the need for some further research. These findings include the apparent effects of press releases on local news staff mobilization to gather information about toxic releases from industry, the apparent willingness of editors in less pluralistic communities to publish broader stories about environmental health risks not overtly linked to local sources of pollution, and the ways in which political and scientific sources drive news coverage of health risks in Superfund site communities.

**Implications.** These results prompt some suggestions for risk communication practitioners. In general, just as individuals vary greatly in their need for specific types of risk information, so may communities -- and the media organizations in them -- require different communication strategies. Since most of the mass media in the United States are small city dailies or broadcast stations, or community weekly newspapers, public information specialists need to deal carefully and knowledgeably with community constraints on mass communication about local health risks from environmental contaminants.

## EXECUTIVE SUMMARY

COMMUNITY STRUCTURE AND PRESS COVERAGE OF HEALTH RISKS  
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Executive Summary

Members of the public rely on mass media as important sources of information about health risks. We still have a lot to learn, however, about the content of mass media risk messages, about what audiences do with that information, and about the forces that affect the ways media construct the messages.

In this study, we explore the impact of community structure on the behaviors of journalists and their media organizations as they fashion stories about risks posed by environmental contamination. We focus on community structure for two reasons: (1) Researchers have found it to be a powerful predictor of media coverage of environmental issues, and (2) despite its apparent influence, many risk communication campaigns fail to take community structure into account.

Talking about community structure, or pluralism, is a way of talking about the distribution of power in a community. At one end of the structure continuum are homogeneous communities, settings where individuals are a lot like one another and power is shared by a small number of people or interest groups. At the other end of the continuum are pluralistic communities, whose residents are diverse and where many power bases and interest groups compete for influence. Not surprisingly, community size is a good predictor of level of pluralism. For many of us, the best illustrations of homogeneous communities are America's small towns and hamlets, while large, contentious cities anchor the other end.



What makes community pluralism interesting to scholars of the mass media is that communities with differing distributions of power seem to influence their mass media to play different roles as information channels. This linkage was first articulated by a research team at the University of Minnesota: Phillip Tichenor, Clarice Olien and George Donohue.

The three scholars argue that the mass media in a community are important tools for managing conflict within that community but that the distribution of power in the community determines how the tools get used. A quick look at the two types of communities anchoring the ends of the pluralism continuum is illustrative:

- o In structurally homogeneous communities, people in power know each other and tend to work out conflicts interpersonally, in those stereotypical "smoke-filled rooms" down at the Moose Lodge. The role of the mass media in these communities is one of building consensus for those decisions, of legitimizing the power structure. The local newspaper, then, functions as a community booster.
- o On the other hand, structurally pluralistic communities contain so many competing power bases that conflict cannot be worked out interpersonally. Instead, it spills into the mass media. Newspapers in these heterogeneous communities become important communication links, both for the general public and for the powerful, who use the mass media to monitor the perspectives of competing interest groups. Media in these communities are sometimes identified as playing a "watchdog" role because reflecting opposing positions is such an important part of their job.

The bottom line here is that community pluralism ultimately affects the configuration of information available to citizens. In this study sought to see how those differing configurations would influence the availability and nature of risk information, particularly information about contamination by local companies that looms as a health risk. We would anticipate differences in handling of these kinds of risk stories for a number of reasons. One is that the presence of a health risk sets the stage for conflict, and Tichenor, Donohue and Olien have found ample evidence that community structure influences reporting of conflictive information. Another reason is that local companies are often part of the power structure of communities. In such cases, stories accusing them of putting neighbors at risk would be sensitive indeed.

Specifically, we expected to find that newspapers in less pluralistic communities would downplay the risks posed by local companies, as such information would be potentially threatening to the social structure of the community. Conversely, we expected to find that newspapers in more pluralistic communities would focus more directly on the risks as problems to residents of the area.

To explore differences in newspaper treatment of environmental risks, we looked for variation in two content dimensions: media "frames" and a related concept that we termed a "risk linkage."

Frames are ways of interpreting information that journalists learn to apply, subconsciously and reflexively, to news accounts. At their simplest, frames are "what the story is about." They are crucial to journalistic work because reporters must quickly "see" news in the information around them. But frames provide an interpretive scaffolding not only for story writers but also for story readers. We all use the first few paragraphs of a newspaper story to determine that story's main point and

to decide if we wish to keep reading.

In the studies discussed here, we paid special attention to how community pluralism affected newspapers' decisions to frame environmental risks as problems or as issues being solved. We suspected that newspapers in more pluralistic communities would frame these risks predominantly as problems while newspapers in more homogeneous settings would emphasize, instead, the ways in which the local power structures were handling the problems.

A "risk linkage" is information that makes an explicit connection between an environmental contaminant and a human health problem, no matter how big or small that problem may be. Such linkages may be sensitive ones in less pluralistic communities where companies are often major power brokers but, conversely, may be common media fare in a more pluralistic community where local companies are only one among many competing interest groups. Thus, we expected to find that newspapers in more pluralistic settings would provide more risk linkages than newspapers in less pluralistic ones.

Guided by research on community structure and our educated guesses about how such structures would influence media coverage of environmental risks, we conducted three studies of press coverage of health risks from environmental contaminants. They are:

- o A general content analysis of 19 newspapers, primarily in Wisconsin, examining reporters' use of framing and other presentation strategies in stories about environmental contamination from industries and other local sources of pollution;

- o A qualitative, case study exploration of newspaper coverage of three Superfund sites in Wisconsin, using interviews and content analysis and
- o A content analysis of press coverage of a report issued by a New York-based environmental group about toxic pollution in the Midwest, based on the Toxics Release Inventory. Because our research has implications for risk communication public information programs, we cap off our analyses with this case study.

After presenting the results of our analyses, we will explore their implications for risk communication practitioners.

### General Content Analysis

We examined nine months of coverage by 19 newspapers in 16 communities, mostly in Wisconsin. (We included Chicago so that we could get as much variation in community pluralism as possible.) We found that community pluralism indeed affects the ways that local newspapers depict environmental contamination--especially that from industries and other sources of local contamination--in their cities and towns:

- o Newspapers in larger, heterogeneous (i.e., more pluralistic) communities were more likely to link local contaminators to possible health threats than were papers in smaller, homogeneous (i.e., less pluralistic) places;
- o Papers in these larger communities were more likely than their counterparts in smaller communities to frame (i.e., strongly depict) contamination from local sources as a problem;

- o Papers in smaller communities were more likely than papers in larger communities to frame contamination from local sources in the context of the solution to the problem.

There are also variations in the ways that news media in these different types of communities made use of what we termed "generic" stories about contamination. Generic stories did not specifically state whether or not the kind of contamination referred to in the story (for example, from power plants, industries, and so forth) was to be found in the local community. Instead, generic stories provided a broad-based, usually regional or national look at contamination from these and other sources, which in effect could be "everywhere or anywhere." While we still have some uncertainty about the roles that generic stories play in news accounts in bigger versus smaller communities, our study indicated that:

- o In larger, more heterogeneous communities, many generic stories seem to be sources of additional information about solutions to environmental contamination problems tried elsewhere.
- o In smaller, more homogeneous communities, generic stories tend to stress health risks linked to the contamination referred to in the story, and tend to be feature-type stories, that is, stories not based on specific recent happenings but the kind that usually provide more general information.

It is possible that editors in smaller communities might use such generic stories to convey locally relevant health risk information in a way that avoids pointing fingers at local sources of contamination, but that relies on the ability of local readers to make the necessary inferences. Both of these possibilities signal the need for further research. However, it is clear that editors and reporters in smaller communities treat very carefully information about health risks and other

problems stemming from contaminators in the community. The location of the contamination referred to in the story--whether it be local, in some other community, or "generic"--plays a relatively big role in the news coverage decisions of small community journalists, as compared to their large city counterparts.

This analysis provides a baseline suggesting that the case studies to follow provide representative results.

### Superfund Case Studies

If community pluralism is indeed influencing reporters' coverage of environmental risks to health, then one should see that influence across an array of studies and methodologies. The purpose of these case studies was to test for the effect of community structure through a more qualitative process. Specifically, we explored factors influencing newspaper coverage of three Superfund sites in Wisconsin.

We used three criteria to select the sites: (1) A site must be situated near communities of different sizes to create variance in community structure, our primary independent variable; (2) A site must have attracted news coverage throughout its lifespan; and (3) A site must still be in the process of clean up. Once we had selected a site, we collected and qualitatively analyzed newspaper coverage from at least two newspapers serving at least two communities near the site. We also interviewed editors, reporters, and state and federal agency sources involved with the site.

Community structure indeed seemed to be reflected in the newspaper coverage of each Superfund site:

- o Newspapers in smaller, more homogeneous communities downplayed coverage of the sites, attending to them only when public hearings and other "news" events demanded attention. Additionally, newspapers in these less pluralistic settings were far more likely to reflect on the Superfund sites as problems being solved by local officials.
- o Newspapers in smaller, more homogeneous communities also were loathe to portray the local contaminator as a villain; indeed, the most frequent strategy was to ignore the role of the local company altogether. Editors of newspapers in these more homogeneous settings frequently referred to their role as one of "featuring" the community, not critiquing it.
- o Newspapers in larger, more heterogeneous settings, on the other hand, were much more likely to cover these sites extensively and critically. They were more likely to frame the contamination as a problem, both in terms of threatening the health of community residents and in terms of devising adequate clean-up procedures, and were more likely to identify the contaminator as a community villain.

Just as interesting, however, was another community-based finding. Community structure seemed to influence not only individual story frames but also the larger theme within which a Superfund site was interpreted. Over the course of years of stories, each Superfund site in this case study was given meaning via a very specific, community-based framework that played a major role in what that story was "about" for community members. These community-based frameworks had nothing to do with the notion of risk to health but, instead, were forged by interactions and processes unique to the power structure in that community.

For example, a Superfund site in an unincorporated town adjacent to two larger communities quickly became defined as a territorial problem. Historically, the two larger communities competed to annex land from the unincorporated town, and that territorial dimension quickly took over as the dominant meaning of coverage. The long-term theme of the Superfund coverage of this site focused not on the risks to health of individuals living near the site but, instead, on the struggle of the unincorporated town to maintain a sense of identity.

Similarly, PCB-laden sediments in a river and harbor near Sheboygan were transformed from a story about the risks of eating contaminated fish to a story about the economic problems posed by the contamination. Sheboygan, on the shore of Lake Michigan, relies heavily on sport and commercial fishing for its economic base. The Superfund site there was immediately given meaning as an economic--not a health risk--story.

Thus, these three Superfund case studies not only supported the argument that community structure influences the selection and framing of information about local environmental contamination but also introduced an unexpected community influence: the ability of the community power structure to place its own meaning framework on the issue. Superfund sites take years to resolve and, partly because of the Superfund process itself, remain "news" for much of that time. Over such lengths of time, coverage of each Superfund site in this study was transformed into a kind of community saga, a morality play unique to the community itself.



### Toxics Release Inventory Case Study

This case study examined how community pluralism and the extent to which communities rely on manufacturing for jobs affected the way that 373 midwestern daily newspapers covered a report, issued by a New York-based environmental group, about high levels of industrial toxic releases in the Midwest. The group, Inform, Inc., included in the report some data on the amount of toxic releases for every county in the seven-state region, based on their examination of the Toxics Release Inventory. News reporters could use these data to "localize" the story, that is, apply the report's findings about toxic releases to their own counties.

Inform, Inc., mounted an information campaign to announce publication of the report, entitled Toxic Clusters: Patterns of Pollution in the Midwest. So, we also examined the effects of their press kit and related information activities on press coverage of Toxic Clusters, in the context of community pluralism and reliance on manufacturing. Even though Inform, Inc., sent their press kit to only some of the newspapers in our analysis, all of the newspapers we studied had access to a wire service story based on Toxic Clusters.

We found that important aspects of a journalist's decisions -- whether to publish a story about Toxic Clusters in the local newspaper, and if so, what to aspects of the story to stress in the headline -- were affected by how much the community relied on manufacturing and, to some extent, by community pluralism. In particular:

- o When we divided communities into low, medium, and high levels of reliance on manufacturing, we found that newspapers in communities with the mid-level of manufacturing reliance were the most likely to publish a story about Toxic Clusters. This result suggests that editors in communities without much manufacturing might have

considered the story to be locally irrelevant; editors in communities that are very dependent on manufacturing might have considered the story to be, in some way, too sensitive to run locally. This pattern was most pronounced among communities that are highest in pluralism.

- o Local sensitivity to the report also seemed to be reflected in the ways that headlines were composed by those newspapers that did run a Toxic Clusters story:

>> The more the community relies on manufacturing, the less likely the local paper's headline for the story spotlighted a health risk.

>> Newspapers in communities that are higher in pluralism but not very reliant on manufacturing were the most likely to indicate in their headlines the local relevance of the story.

Also useful in our study was Oscar Gandy's idea that agencies and other news sources who "subsidize" the news media by disseminating to information that they can use quickly and inexpensively increase the likelihood that the media will use the information. In so doing, the media might offer to audiences the agency's perspective on the news.

Among our findings were the following:

- o Papers that were sent the press kit were more likely to publish an item about the report, either from a wire service or as produced by one of their own reporters. None of the papers we studied used the Inform, Inc., news release verbatim.
- o A major effect of the press kit was to make it easier for editors to assign staffers to cover the story, since the press kit contained additional information about the report that was easy for reporters to gather and use. Press conferences, if nearby, had similar effects. Once local staff members were assigned to cover the story,

they tended to include in their articles information about the local levels of toxic releases.

- o Newspapers in communities experiencing problems with high overall levels of toxic industrial pollution, or that have "dirtier" local industries, felt more compelled to have one of their own staffers cover the Toxic Clusters story. Therefore, local conditions seem to have prompted editors to entrust the story to one of their own reporters.

Overall, our results suggest that information about health risks and related problems stemming from local contaminators is very sensitive information and is treated carefully by local media. In particular, daily newspaper use of information subsidies seems to be affected by a cost-benefit tradeoff in which editors take into account the cost of gathering the information as well the effects on the community of publishing it.

### Recommendations

Designers of risk communication programs should, in effect, consider the information needs of two "audiences": (1) selected target groups (segmented publics) and (2) the media organizations serving those publics. In neither case does one message fit all. Our research indicates that:

- o Public information programs about risk should take into account community structure, especially community pluralism. As a practical matter, the size of a community's population is a pretty good indicator of pluralism.

- o Community structure can have an impact on the interpretive strategies that a newspaper uses to explain a risk and on the types of information about the risk that the paper includes in news accounts:
  - >> In small communities, newspapers will be interested in maintaining an image of the community as a good place where problems are readily resolved and where people get along with one another. Thus, they will usually welcome information couched in terms of how local environmental problems are being solved. They will probably be less welcoming of information that spotlights the notion that members of the community are at risk from local sources of contamination. It will be relatively hard to place "this is a local problem" information in such outlets.
  - >> In larger communities, newspapers will be more open to interpreting an environmental hazard as a local problem and to presenting information about risks from local sources of contamination.
  - >> Even in larger communities, however, local media might find some contamination issues to be sensitive. For example, newspapers seem to be particularly careful about how they present information about problems of toxicity from industry if the community is highly reliant on local manufacturing.
- o The bottom line is that you might need to "tell the story" differently depending on the kind of community, and perhaps work with local news media in different ways. Although they are indicated by the results of our study, more research is needed to demonstrate the effectiveness of the following strategies:

- >> You may need to embed the same information (e.g., explanation of a risk, of the cleanup process) in different contexts when working with the news media in different communities, placing the information in the context of a problem if the news medium is in a larger community or stressing what is being done to solve the problem if the news medium is in a smaller community.
- >> News media in smaller communities appear to be willing to publish broader, feature-type "generic" stories about health risks from environmental contaminants as long as they are not directly linked to local sources of pollution. For news media in smaller communities, a contact phone number or address for the public might be included.
- >> News media in larger communities seem to be interested in generic stories about solutions to contamination problems that are being tried elsewhere.
- >> When contamination issues are locally sensitive, news media will probably prefer that their own staff members cover and craft as much of the story as possible. Papers in larger communities tend to have larger staffs to devote to such customized reporting. Under these circumstances, your best strategy might be to supply fact sheets and otherwise make it as easy as possible for local reporters to write their own stories.

**Other Factors for Consideration.** Our research also generates some other suggestions for planners of risk communication programs:

- o In long-playing stories about contamination, risk information seems to be regarded by journalists as more appropriate in the earlier stages of publicity.
- o Reporters seem to be much more likely to include risk information if it is given to them by a source than to take the initiative to seek risk information from a source to fill out a story or to update it for audiences.
- o From a research standpoint, there is considerable value in approaching a risk communication problem by using a variety of research methods, and by taking into account (that is, controlling for) the ecosystem of forces that can affect risk communication processes.

### **Conclusion**

Our research has demonstrated the effects of community pluralism on mass mediated risk coverage, and the need for public information programs concerning environmental risk to tailor their messages to the roles of media in communities that vary in pluralism. Since most of the mass media in the United States are small city dailies or broadcast stations, or community weekly newspapers, public information specialists will need to deal commonly with the kinds of community constraints on mass communication about local health risks that we explored in these studies. .

## **CHAPTER ONE:**

### **GENERAL BACKGROUND**

## Introduction

Among the many channels that can convey risk information to the public, the mass media (e.g., newspapers, television) have the greatest potential to inform the greatest number. While we know that individuals say they rely on mass media as important sources of risk information (Freimuth, Edgar and Hammond, 1987; Singer and Endreny, 1987), we still have much to learn about what is in those messages and what audiences do with them. Research on both dimensions flourishes; the findings reported here deal directly with what is in messages. Specifically, this study examines the extent to which differences in the social structure of various communities -- in particular what is termed community "pluralism" (the heterogeneity or diversity of groups in the community, and accompanying differences in the distribution of power and in the roles that mass media play) -- drives the ways in which journalists deal with local environmental contamination as news.

**Products and Process.** Studies of media coverage of environmental risks have looked more intensively at the products -- risk stories -- than at the process of story construction. This means that most studies attempt to explain how coverage comes about by inference rather than by direct observation and measurement.

Analyses of media coverage to date have yielded two large patterns of findings. One is that media coverage of risks does not mirror "reality," as defined by the researcher. For example, Greenberg, Sachsman, Sandman and Salomone (1989) found that the television networks in the United States focused disproportionately on sudden, violent environmental risks such as large chemical spills or airplane crashes. These disasters make compelling TV footage but, cautioned the researchers, cause fewer deaths than other, more chronic environmental risks such as smoking and asbestos



exposure. In a slightly different vein, Singer examined the goodness of fit between media accounts of a variety of hazards and the original scientific reports and found the news stories made "a substantial number of errors" (Singer, 1990, p. 105). Both of these studies compared media stories to a particular reality defined operationally by the researchers, and found the stories wanting. Other studies have reached a similar conclusion (see, for example, Combs and Slovic, 1979; Chemical Risks: Fears, Facts, and the Media, 1985).

A second pattern of findings from this body of research is that risk stories contain very little risk information, as defined by science. For example, Sandman, Sachsman, Greenberg and Gochfeld, in a study of newspaper coverage of environmental risks, reported finding scant "explicit risk information in articles that are ostensibly about environmental risk" (Sandman et al, 1987, p. 52). In fact, they found that more than two-thirds of the paragraphs dealt with other dimensions of environmental issues, such as assigning blame or calculating the cost of the environmental damage. Of the third of the paragraphs that did discuss risk, only 17.4% addressed the basic risk issue: "How dangerous is this substance or situation?" (p. 11)

Singer and Endreny (1987) made similar observations in their study of hazards coverage in 15 media outlets. For example, they reported that of 624 stories published or aired in these outlets in 1984, only 5% contained any information about the annual mortality associated with the particular hazard being addressed. News reporting about hazards, Singer and Endreny (1993) have concluded, is driven by catastrophes and other events, and generally ignores risk-benefit tradeoffs, ethical and economic issues, and other longer-term considerations that would help people make rational decisions about risks.

Most of the extant studies of media coverage of environmental risk are descriptive. The authors speculate about why the patterns found in their stories exist, but they rarely bring data to bear on that very important issue. In our study we begin to alleviate this problem by gathering data to help us explore the impact of one type of predictor, community structure, on the behaviors of journalists and their media organizations as they try to "make sense" of environmental risk information.

**Macroscope.** Why do we place all our eggs in this rather macro-level basket? We offer two responses. [1.1]

For one, community structure has been shown to have an important impact on media coverage of environmental and other issues. Tichenor, Donohue and Olien, the founders of this line of study within mass communication, have documented the role that community structure played in the behaviors of mass media in regard to conflict over local issues in smaller and larger communities.

More recently, Dunwoody and Rossow examined the impact of community structure on newspaper coverage of a high-level nuclear waste repository controversy in Wisconsin (Dunwoody and Rossow, 1989; Rossow and Dunwoody, 1991). Among their findings were that newspapers in more heterogeneous communities were far more likely to write stories reflecting conflicting points of view about the issue and were more likely to go beyond events to

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[1.1] Social and behavioral scientists sometimes refer to the "level of analysis" of their studies. Micro-level studies are usually psychologically based and often concentrate on what influences the behaviors or attitudes of individuals. A laboratory study of how people respond to different risk messages, for example, would usually be considered a study conducted at the micro or "individual" level. Macro-level studies are usually based in sociology and examine institutions, communities, and other large social systems to decipher the workings of broad social forces, such as, for example, the power relationships among groups. A study of the influence of the manufacturing base of different communities on patterns of news media coverage of health risks posed by local industries would usually be considered a macro-level study.

write issue-oriented pieces. Newspapers in more homogeneous communities, on the other hand, often covered the issue perfunctorily or avoided it altogether, even though the proposed repository would be a close neighbor.

A second reason to concentrate on community social structure as a predictor of media coverage of environment risks is that many risk communication programs do not take such macro-level variables into account. Risk managers often seem to assume that "one message fits all" and approach each hazard, each community, in similar ways. As Grunig (1989) notes, however, public information efforts, if they are to succeed, must be directed to carefully selected "segments" of the audience, and must consider the appropriate media and messages based on the social and psychological characteristics that distinguish these particular audiences. Important to consider, he says, are the structures of different communities in which audiences reside -- especially the pluralism of communities, as depicted by Tichenor, Donohue and Olien (1980) -- and the varying roles of the media in those communities. "Few communication campaigns have segmented communities this way," Grunig (1989) states, "although communication planners should do so" (p. 218).

In short, just as individuals may vary greatly in their need for specific types of risk information, so may communities -- and the media organizations in them -- require different communication strategies. Disseminating information about a Superfund site to two neighboring communities, for example, may require the sophisticated risk communicator to fine tune the information to cope with two very different social contexts. This study indicates that those structures are important predictors of the ways in which community newspapers -- and perhaps the individuals in those communities -- "make sense" of the risks at hand.

### Community Structure and Media Roles

Scholars such as Tichenor, Donohue and Olien (1980) have used the concept of community pluralism to represent community structure, in particular the distribution of power in a community, based on indicators of the diversity of the community.

**Community Pluralism.** Usually, but not always, pluralism is associated with the size of the community, with large, metropolitan areas considered highly pluralistic. But much more is involved than population size.

As noted by Olien, Donohue and Tichenor (1968), communities that are more pluralistic have a more diversified population, a greater number and variety of interest groups, and more specialization. Tichenor, Donohue and Olien (1980) further note that smaller (less pluralistic) communities tend to work in an atmosphere of consensus, and decision-making is commonly based on precedent and tradition. Larger (more pluralistic) communities tend to work in an atmosphere of greater conflict, and decision-makers are forced to take into account the interests of the various groups that are often at odds with one another.

**Roles of Mass Media.** News media are an integral part of the community and tend to reflect the concerns of the power structure of the community (Tichenor et al., 1980), usually serving as reinforcers of established authority, powerful interests, and mainstream values (Olien, Tichenor and Donohue, 1989). Conflicts, of course, occur in smaller communities as well as in larger ones. But the role of the mass media is different in smaller communities, owing primarily to differences in the role of communication in managing conflicts.

In less pluralistic communities, as Olien et al. (1968) note, community leaders and interest groups tend to work out conflicts through informal means and interpersonal channels of communication. Local news media in these less pluralistic communities are seen as legitimizers of projects, builders of consensus, and instruments for tension management in the community, and in general as means of putting the town's best foot forward. Local news media would be expected to avoid, if possible, much reporting of conflict within the community. Reporting that would point fingers at individual or institutional members of the community, dig up local wrongdoing, or potentially raise sensitive issues would not be consistent with this role. "A newspaper in a one-industry town is unlikely to report that industry in a critical way," Tichenor et al. (1980, p. 220) observe. "It will reflect community consensus about that industry through reporting socially noncontroversial aspects of that industry and generally avoiding reports that would question it."

In larger (more pluralistic) communities it is very difficult for community leaders and interest groups to communicate about, and settle, conflicts through interpersonal channels. Conflict is a routine part of public life in more pluralistic communities, and more communication activity must take place at the formal and public level (e.g., public hearings and events staged by interest groups to get media attention), resulting in more conflict reporting by the mass media (Olien et al., 1968, 1989; Donohue, Olien and Tichenor, 1985b). "Such emphasis on conflict is not necessarily disruptive," Olien et al. (1978, p. 446) explain, "but is part of the process of resolving conflicts and managing them at tolerable levels." Community leaders in more pluralistic communities are more likely to perceive the local press as taking the initiative in reporting conflict (Donohue, Olien, and Tichenor, 1985a), and in general the news media in

more pluralistic communities tend to perform more of a "feedback" role, drawing attention to local problems (Tichenor et al., 1980).

These news coverage patterns are further reinforced by some organizational and economic factors that separate the large city daily newspaper from its smaller community daily or weekly counterpart. Small town journalists may find it difficult to separate professional from social relationships in the community, while the urban journalist is in a setting that more readily allows this separation (Tichenor et al., 1980). In addition, as Donohue, Olien, and Tichenor (1989) note, smaller newspapers have smaller staffs with less specialization. Editors of smaller weeklies in particular must play multiple roles on their papers, which often include reporting, management, and advertising. Their acute concern about economic survival means that, as part of their daily routines, they are more concerned about advertising, circulation and profits than the editors of large dailies who specialize in news while others on the newspaper organizational staff make decisions about advertising, circulation, and profit. Only a portion of the small town editor's time is devoted to news.

Ownership of the local paper by a corporate chain decreases the editor's profit concerns, but increases the editor's sensitivity to covering business news (Olien et al., 1988). Chain ownership also seems to decrease the likelihood that the paper will report local conflict (Donohue et al., 1985b). Despite their greater concerns about economic survival, however, the smaller community editors generally agree with editors in larger communities that information dissemination has a higher professional value than their newspaper's economic concerns (Donohue et al., 1989).

Pluralism and Use of Scientific Information. As a side effect of pluralism, members of the public in larger communities are more supportive of the dissemination of expert scientific information, and of its use in public decision-making, than are members of the public in smaller communities, at least in regard to local conflicts concerning environmental hazards from industry. Residents of smaller communities favor the use of informal means to solve local problems and value local autonomy, both of which can be threatened by using formal scientific knowledge that originates from agencies outside the local social structure. Overall, however, local community leaders tend to be relatively supportive of such dissemination and use of expert scientific information (Tichenor et al., 1980).

### Information Configuration

As Olien et al. (1978) observe, community pluralism ultimately affects the configuration of information available to average citizens in different communities. In our study, we propose that community structure, in particular community pluralism, affects press coverage of risks from environmental contaminants, such that the configuration of information about those risks as presented in the press differs from community to community. We intend to examine information configuration especially in terms of press "framing" of stories about environmental contamination and associated risks, and in terms of a related concept we call a "risk linkage."

**Frames.** To organize news accounts for audiences, news media regularly develop consistent patterns of selection and emphasis of information about a given topic that indicate what the story is about. While journalists do not necessarily develop and use these "frames" consciously (Hackett, 1984), they are used, according to Gamson (1989), as organizing ideas

"for making sense of relevant events and suggesting what is at issue." In the process, Gamson says, some information is emphasized and some excluded.

These frames are essential for journalistic work because reporters and editors must make speedy decisions about what is worth their attention. A journalist with 30 minutes to write a story does not spend much time contemplating "what the story is about." That particular decision is made in seconds, and the reporter then uses the bulk of that 30 minutes to select and order information in ways that are consonant with that decision.

Journalists commonly cover news by covering events that occur. Therefore, key characteristics of the event could trigger framing decisions, especially when the reporter's time is tight. For example, when a nuclear power plant at Three Mile Island (TMI) sprang a leak in 1979, many media organizations defined the event initially as "an accident" and sent general reporters -- individuals adept at covering fast-breaking news -- to the scene. It was not until many of these journalists began floundering in a sea of technical terms and terrifying images -- for example, the ominous hydrogen bubble that was hypothesized to be growing inside the damaged reactor -- that these organizations redefined the event and sent in their science reporters. Rubin, who headed a subsequent investigation of media coverage of TMI, reported that journalists' information-gathering efforts were so accident-oriented during the crisis that "science writers had little opportunity to ask sophisticated questions of knowledgeable sources" (Rubin, 1980).



Other evidence also indicates that journalistic framing does influence the ways in which stories about science and environment are constructed. A study of journalists' coverage of social science research topics by Weiss and Singer (1988) found that reporters rarely defined the topics they dealt with as belonging to the domain of science or of scientific disciplines. Instead, they framed them as "crime stories" or "poll stories." The absence of a "science" frame, then, made the use of scientific information rare in these accounts. In a more recent study, Ryan, Dunwoody and Tankard (1991) examined newspaper and magazine coverage of two risks -- a nuclear power plant accident and publication of a study positing a relationship between coffee-drinking and pancreatic cancer -- and concluded that coverage differences were more closely related to the employment of different frames than to other predictors. The coffee and pancreatic cancer story was immediately defined as a "risk" story, while the nuclear power plant story was defined as an "accident" story. As a result, stories about the former concentrated on explaining the risk while stories about the latter focused on "what happened" in the course of the accident. Although small amounts of radioactive steam did escape from the power plant during the accident, journalists paid little attention to questions of risk in their stories.

Considerable evidence suggests that frames used by journalists for story construction are not idiosyncratic (e.g., Rachlin, 1988; van Dijk, 1988). Rather, journalists across a wide range of media seem to employ similar mental maps and, thus, produce stories that reconstitute the world in similar ways. In this study, we posit that community conflict control processes systematically affect the frames journalists learn to apply, probably reflexively, to stories in their communities that could raise, or be related to, local conflict. For example, the news media in a community

could give some stress to alerting audiences to problems or dangers arising from environmental contamination, or emphasize how these problems or dangers are being solved. A "problem" frame given to a story about contamination from a source local to the community (e.g., alerting residents to the amount of pollution a local industry is spewing into the air) is likely to be treated as conflict-generating information in the local news media. A "solution" frame (e.g., stressing what the local industry has done to prevent or clean up local contamination) would be treated less as conflict-generating information and more as consensus-oriented information in the local news media. We investigate these and other frames in our research. We also pay special attention to news media presentation of information about health risks from local environmental contamination, which, we posit, is also affected by community pluralism.

**Risk Linkage.** News media can present information about health risks in various ways, for example, as a probability of becoming ill from exposure to a contaminant, as a raw figure indicating the number of people who have been affected by a health hazard, as an anecdote. In our study, we are defining risk information in a very basic way, that is, as information that links an environmental contaminant to harmful effects on human health (a "risk linkage"). We propose that information associating a local individual or organizational (e.g., industrial) member of the community with local environmental contamination that poses health risks is fundamentally conflict-oriented information in the community, and will be controlled in some manner, as would any conflict information. Control of this information could include downplaying, ridiculing, or not mentioning the health risks from the contamination.

Pluralism, Framing, Risk Information. We expect that the manner in which local news media frame stories about local sources of contamination, and portray risks from exposure to that contamination, will vary according to community pluralism, in ways consistent with the roles of the news media in those communities. Media in less pluralistic locales, we expect, will be much less willing to carry information about health hazards stemming from local sources of contamination without at least adjusting their presentations to minimize local conflict. These differences in media coverage, furthermore, are very important considerations in the planning and conduct of public information efforts regarding Superfund sites and other sources of contamination in local communities.

### Our Studies That Follow

Based on the research on community structure and our conception of how risk information might be differentially configured in different communities, our general research question is:

What is the effect of community structure, in particular community pluralism, on press coverage of health risks from local sources of environmental contamination?

To answer our research question, we conducted a three-part, multi-method research project, each component of which is presented in one of the three chapters to follow:

- o **General Content Analysis** -- A quantitative content analysis of framing and of presentation of risk information about local environmental contamination in 16 communities (19 newspapers) primarily in Wisconsin.

**Synopsis:** This analysis provides a baseline suggesting that the case studies that follow in subsequent chapters -- especially the quali-

tative Superfund case studies -- provide representative results. This analysis in particular examines systematically the relationship of community pluralism to local newspaper use of risk linkages, problem frames and solution frames when they report on local sources of environmental contamination. Taken into account are the influences of what are termed "covariates" or "control variables" -- some other major factors that could affect this coverage. Among these variables are some community factors (e.g., average amount of toxic releases from each local industry, reliance of the community on manufacturing for employment) and news organizational factors (e.g., size of the news staff, kind of ownership).

- o **Superfund Case Studies** -- Three qualitative case studies that explore, historically, the development of media framing and presentation of risk information from Superfund sites in Wisconsin.

**Synopsis:** In each of these case studies we compare the coverage given a local Superfund site by newspapers in relatively larger and smaller communities. Our studies include qualitative content analyses exploring the historical development of various frames and the use of risk information in newspaper coverage, and interviews with reporters, editors, and news sources regarding this coverage. These studies also explore journalist-source relationships and how characteristics of the news organizations themselves affected coverage of the Superfund sites.

- o **Toxics Release Inventory (TRI) Case Study** -- A case study, using quantitative content analysis, of the ways that daily newspapers in the Midwest covered a report issued by an environmental interest group about toxic pollution in seven midwestern states, based on data the group gathered from the Toxics Release Inventory.

**Synopsis:** Because our research has implications for risk communication public information programs, we cap our analyses with this study. We examine how a news release and other public information efforts affected news coverage of this report which provides data about toxic releases from manufacturing -- information that might be sensitive or raise conflict in communities reliant on manufacturing for employment.

Because this component of our study deals with the effects of public information efforts, we also employ Gandy's (1982) model of "information subsidies" to shed light on some of the key processes involved. Gandy proposes that news releases and similar forms of public information activities influence news coverage by making certain kinds of information selectively more available to journalists, and therefore easier for them to use. Turk (1986) proposes that an agency subsidizing the news media with information might thereby influence the public's awareness of what the agency wants to stress. We analyze the effects of information subsidy on journalists' news judgments (especially decisions about whether to publish this TRI-based story at all, and if so, what information to include in stories and stress in headlines) in the context of community pluralism and reliance on manufacturing, and again account for the influence of the various control variables. We provide a more

complete overview of the information subsidies model within the chapter that concerns the TRI case study.

**"Independent" and "Dependent" Variables.** In sum, our study concentrates on the effects of community structure, especially pluralism, on various aspects of newspaper content that concern environmental contamination and associated health risks. In social science parlance, variables such as pluralism, which are considered to be active agents that affect other variables, are termed "independent" variables. The variables that are thought of as being influenced by the independent variables -- in our study, variables such as framing or the inclusion of risk information in news items -- are termed "dependent" variables. We use this terminology in the chapters that follow.

**"Control" Variables ("Covariates").** Even though we isolate key independent and dependent variables so that we can examine relationships between them, these relationships usually take place in an ecosystem that includes other variables and their relationships. These other variables can also influence the dependent variable or even the relationship between an independent and a dependent variable. For example, newspapers in more pluralistic communities (independent variable) might include more information linking health risks to local sources of contamination (dependent variable) not because of the influence of pluralism but because newspapers in bigger communities tend to have larger news staffs and therefore the resources to track down information about local health risks, which can be challenging for journalists to get. It is essential to account for the impact of key additional variables if we are to understand the dynamics of the relationship between pluralism and the content of risk-related news items in a community. When additional variables such as the size of the

news staff are included in an analysis, they are termed "control" variables or "covariates." We account for the following essential media organizational and community variables across all three components of our study (the two quantitative content analyses and the historical/qualitative case studies):

- o News staff size, as noted, represents resources that local news media can devote to gathering information -- including risk information -- about local contamination.
- o Individual or corporate ownership, as noted earlier, could affect coverage of local conflict and local businesses and, therefore, reporting on contamination from those sources. In regard to information subsidies, Gandy (1982) has called for more research into the effects of newspaper ownership structures on the messages that newspapers produce.
- o The presence of an environmental or science reporter on the staff signals that the paper (1) has a strong organizational, structural commitment to covering those areas of news and (2) might have staff expertise in coverage of environmental risk, which could affect coverage.
- o Staff generation of the story, as compared to wire-service generation, would also be expected to affect the inclusion of local detail. This variable is included among the dependent variables in the TRI case study, and is also used as a control variable in some parts of that analysis.

Community covariates include the extent to which the community relies on industry for employment and how environmentally "clean" or "dirty" those industries are (toxic releases per industry), on the average. Because news organizations often pay deference to economic and political powers in the community (Tichenor et al., 1980; Olien et al., 1989), these variables could affect coverage of those health risks stemming from environmental contamination from local industry.

Some parts of our study include some other relevant control variables. For example, newspapers published daily tend to have more space to elaborate the news (e.g., explain risk) than do weekly or semi-weekly newspapers. Our general content analysis and two of the Superfund case studies include newspapers with such differences. The TRI case study includes only daily newspapers but controls for variables related to the public information efforts that we are assessing.

**Analysis.** In our qualitative case studies, we refer to the likely effects of independent variables and covariates whenever they seem relevant to our findings.

In our quantitative content analyses, we display in tables the relationships of independent variables to the various dependent variables. To simplify the tables, these relationships are represented by using a commonly used statistic, the percentage. To account for the influence of the control variables, we used a program available in the Statistical Package for the Social Sciences (SPSS) to adjust the results displayed in the tables by the control variables. In other words, the results found in the tables generally represent what we found after we compensated for the influence of the control variables.



Because the data in the quantitative content analyses are from a census, not a sample, probability tests of statistical significance - such as those commonly found in the report of a sample survey -- are not being used. Instead, we use the statistic "epsilon" to determine whether differences in percentages are significant, that is, strong enough to be worth consideration.

According to Babbie (1982), epsilon is "the percentage point difference separating the extreme categories of an independent variable, as described in terms of some dependent variable" (p. 293). As a rule of thumb, Babbie (1982) says, epsilon needs to be at least 10 percentage points (.10) of difference to be worth noting, and epsilon values greater than 20 points (.20) usually signal an important relationship.[1.2]

If any of the control variables have significant relationships with the dependent variable, we report those in tables and text too. These relationships are depicted by the statistic "beta." [1.3] As a rule of thumb, beta must be at least .20 in absolute value to be considered significant in our study. Beta values in our analyses are also controlled by the other covariates.

**Contribution.** What's new and valuable about our study? Our study supplants speculation with evidence about the forces that affect the presentation of risk-related news accounts in local newspapers, especially by bringing to light the workings of community structure and how pluralism

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[1.2] For example, suppose that a hypothetical study examines the effects of educational achievement (independent variable) on the frequency of reading a newspaper (dependent variable). The study finds that 50% of high school graduates read a newspaper every day, whereas only 20% of the people who never completed high school read a newspaper every day. The difference in percentages, expressed as  $.50 - .20$ , yields an epsilon value of  $.30$ , which represents the strength of the relationship between education and newspaper reading in this hypothetical study. If the difference in percentages were less (e.g.,  $.30 - .20$ ), epsilon would be smaller (.10) and the relationship of education to readership would be weaker.

in particular influences media framing of news accounts about local sources of environmental contamination. The relationship of community structure to framing and to the presentation of risk information is previously unexplored.

While it is possible to speculate on the effects of this content on members of the community, any conclusions about audience effects require evidence of those effects, which is outside the realm of our study. Therefore, it not appropriate for us to recommend that particular message strategies will be more or less effective with audiences. Instead, at the end of this report, we will offer some general insights and guidelines that should help professionals formulate their public information efforts when dealing with news media in different kinds of communities -- in particular to segment communities according to pluralism, as Grunig (1989) recommends, with an understanding of the social forces that are operating.

The research presented in the following chapters should be particularly valuable to those planning community information efforts that deal with industries and other local sources of environmental contamination, especially when disseminating such information could provoke local

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[1.3] Beta values range from -1 through zero to +1, and represent the strength of linear relationships between two variables. If beta is positive, it indicates that greater values of one variable are associated with greater values of the other variable. If beta is negative, it means that greater values of one variable are associated with lesser values of the other variable. For example, if the relationship between the number of years of formal education and the number of days a week a person reads a newspaper yields a beta value that is positive, it means that the more years of education one has, the more days a week one reads a newspaper. If beta would be negative, it means that the more education one has, the fewer days a week one reads a newspaper. The bigger the decimal value of beta, the stronger is the relationship between the two variables. As a rule of thumb, beta values of less than .20 in absolute value are usually considered weak (and will not be reported in our study), betas of .20 to .40 in absolute value are usually considered moderate, and betas greater than .40 in absolute value are usually considered strong.

sensitivities. We hope that the theory and research that we present will help public information program planners deal creatively with such problems.

## CHAPTER TWO:

### GENERAL CONTENT ANALYSIS

## Introduction

This chapter employs a content analysis of 19 newspapers in 16 communities to investigate the effects of community pluralism on press treatment of health risks and other problems that stem from local environmental contamination. The broad base of this analysis provides a baseline that underscores the representativeness of the case studies that follow in subsequent chapters, especially the Superfund historical case studies, which are based on qualitative methodology. In this content analysis, we employ a social scientific method and present our results in a hypothesis-testing format.

## Hypotheses

We expect that the extent to which local news media contain information about environmental health risks from local sources of contamination will vary according to community pluralism, in ways consistent with the roles of news media in these communities. Media in less pluralistic locales, we expect, will be much less willing to carry such information without at least adjusting its presentation to minimize local conflict. Therefore:

H1: Newspapers in more pluralistic communities will be more likely than newspapers in less pluralistic communities to link local contamination from local agents to threats to human health.

Although we have no formal hypotheses, we will also investigate whether any differences exist in the ways these newspapers emphasize risk from this contamination in headlines.

Because media in more pluralistic communities are expected to be more likely than media in less pluralistic communities to depict local contaminants as those who present problems to the the community, we would expect that:

H2: Newspapers in more pluralistic communities will be more likely than newspapers in less pluralistic communities to employ problem frames in stories about local contamination from local agents.

Because news media in less pluralistic communities are expected to serve as legitimizers and consensus-builders, to present positive news about the community, and to minimize problems presented to the community by local contaminants, we would anticipate that:

H3: Newspapers in less pluralistic communities will be more likely than newspapers in more pluralistic communities to employ solution frames in stories about local contamination from local agents.

We will also compare this treatment local news media give to local contamination to the treatment these news media give to: (1) contamination that the story specifies as being in places distant to them, and (2) contamination that is not presented in the story as being in specific locales, but instead is essentially "everywhere" or "anywhere," and therefore potentially local as well.

To help our interpretation of results, we will also consider whether stories are driven by events that have occurred. Our analysis will control for the set of community and media organizational variables noted in Chapter One, as well as for the publication frequency of the newspaper.

## METHOD

A content analysis was conducted of 19 newspapers in 16 communities selected to represent, primarily, variance in community pluralism. The communities, however, were also chosen with an eye toward achieving a mix of daily and weekly newspapers, urban/suburban/rural locales, and levels of known local pollution. [2.1] We analyzed only newspapers because some smaller communities had local newspapers but no local broadcast (especially television) stations, and because we did not have the resources to monitor all local broadcast news in these communities. Except for Chicago, all communities are in Wisconsin. We included Chicago to increase variance in community pluralism in our study.

### Item Selection

We analyzed nine months of press coverage of risks from environmental contaminants (January through September 1991) in all 19 newspapers, choosing for coding all items that met selection criteria. To be included items had to relate to those aspects of known environmental contaminants that could reasonably be associated with human health risks, whether or

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[2.1] Two cities in the study, Milwaukee and Chicago, each have two major competing daily newspapers, both of which were analyzed. A third city, Waukesha, is in the greater Milwaukee area, and has a daily we analyzed. Suburban weekly newspapers with separate editorial staffs in the Milwaukee suburbs of Brookfield, Menomonee Falls, and Franklin, and in the Green Bay suburb of DePere, were also chosen for the analysis. Other weekly newspapers in the analysis were from the smaller communities of Oconomowoc, Algoma, Oregon, Stoughton, Delavan (biweekly), and Sparta, which has two competing weekly newspapers. Also analyzed were daily newspapers from the mid-size Wisconsin cities of Eau Claire, Chippewa Falls, and Sheboygan. Along with representing variance in community pluralism and in urban/suburban/rural locale, communities were also chosen because they have Superfund toxic cleanup sites within their boundaries or nearby, and/or represent variance in toxic releases per industry that is important for analysis. (The smaller community of Sparta, for example, has a higher level of per-industry toxic release than other smaller communities, and a higher level than even the city of Milwaukee.)

not the item actually mentioned those risks, or had to relate to human health maladies that are known to be associated with exposure to environmental contaminants. [2.2] Our system for deciding whether or not an item would be included is shown under the heading of "Selection Protocol" on the first page of APPENDIX A. Notice that a story did not have to contain a link between a contaminant and a health threat to be selected for this analysis. Rather, we selected stories for which such statements would be reasonable candidates for inclusion. After selection and clipping from the newspaper, items were separated from headlines and coded separately after lengthy time intervals had diminished coder memories of the connection of newspaper, story, and headline.

In this analysis, we deal with the subset (n=362) of selected items that: (1) concern contaminants that are linked to contaminators (business, government agency, individual, or other agents specified in the stories as responsible for, or potentially responsible for, the contamination); (2) do not concern contagious diseases; and (3) involve situations in which both the contaminant and the contaminator are in the same location. These criteria allow us to compare media treatments of cases in which agents are associated with the contamination locally, in distant places, or "generically" (e.g., stories about pollution from coal-fired

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[2.2] We did not include in the analysis items that might have mentioned a known contaminant, such as paint, when the context had to do with, for example, choosing paint colors for decorating. While cautionary statements about proper ventilation and disposal could possibly be included in such an item, the context would tend to preclude journalists from including risk information. In such a case, the aspect of this contaminant dealt with in the story would be deemed not reasonably associated with a risk or hazard to human health. If the item were to concern the manufacture of paint, disposal of paint (e.g., landfills, pouring down drains), etc., the item would be included. Various lists of known and commonly used terms for hazardous contaminants, as well as background references (e.g., EPA's Title III List of Lists, the Merck Manual) were used to help verify the connection of contaminants to human health maladies.



power plants nationally).

Our content analysis coding guide can be found in **APPENDIX A**.

### Item Coding

Items for this analysis were coded according to the location of the contaminator and contaminant and the presence or absence of a risk linkage, risk headline, problem frame, solution frame, and event base, and whether the item is staff-generated (see section on control variables in Chapter One). Intercoder (three-coder) reliability overall for the content analysis coding scheme is an acceptable .80, using a method refined by Krippendorff (1980). [2.3]

To measure location, the contaminant and the contaminator were coded as being "local" if the item depicted them as being within the primary news gathering area of the newspaper (e.g., usually corporate limits for towns, metropolitan area for newspapers in central cities of Standard Met-

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[2.3] A content analysis coding scheme, as a scientific instrument, should be "reliable," that is, yield consistent results regardless of who applies the scheme or when it is applied. A common way to ascertain the reliability of a coding scheme is to have at least two independent observers (coders) apply the scheme to a subset of the items under study, and then compare their observations to see how often they agree. For example, coders might read a set of news items dealing with contamination and code each one according to whether or not it contains a risk linkage. Their coding judgments might then be compared across the items to see how often they agree (expressed as a percentage of agreement). Under perfect circumstances, they would agree 100% of the time. In the social sciences, it is very difficult to achieve that level of agreement (or absence of error in measurement), especially when coding schemes become more complicated or deal with somewhat abstract phenomena (e.g., textual frames or risk linkages). Commonly, agreement of about 80% is considered quite acceptable. Even though reporting inter-coder reliability as a percentage of agreement is acceptable, that approach does not take into account how often the coders would have agreed by pure chance alone (Stempel, 1989). Krippendorff (1980) offers a more demanding strategy that takes chance into account and allows one to examine intercoder reliability for more than two coders. In our analysis, three coders scored 15 randomly selected stories from our sample. Intercoder reliability across the 15 stories ranged from .67 to .91, and averaged .80.

ropolitan Statistical Areas) as determined by consulting editors of each newspaper and other sources in advance of our data gathering. The contaminant and the contaminator were coded as being "distant" if the item depicted them as being in specific locales beyond even a region of secondary (occasional) staff newsgathering surrounding the newspaper. [2.4] The contaminant and the contaminator were coded as being in a "generic" location if the item depicted them as being in many places or essentially "everywhere or anywhere," not to preclude their being potentially local as well. An example of a "generic" story is a lengthy article about mercury-contaminated fish by Keith Schneider of the New York Times Service, published in the Eau Claire (WI) Leader-Telegram on September 13, 1991, which began as follows:

DULUTH, Minn. -- Two decades after the government thought the problem had been put to rest, mercury is accumulating in fish in thousands of lakes across the United States and Canada, poisoning wildlife and threatening human health.

A few paragraphs later, the article continues:

Scientists say the principal source of contamination is rain containing traces of mercury from coal-burning power plants, municipal incinerators and smelters. Other contamination comes from lake and ocean sediments previously polluted by mercury.

Another example is a background-type article on the question of health hazards from electromagnetic fields written by Casey Bukro in the Chicago Tribune of May 26, 1991, which began as follows:

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[2.4] The primary "local" newsgathering area usually coincided with the primary area of circulation. In the coding scheme, the location of some contaminants and contaminators was coded as "regional" if they were within a geographic area of secondary staff newsgathering activity, beyond local, as defined by the newspaper. We left these "regional" items out of the analysis because there were too few of them to stand alone as a separate category of analysis, and combining them with either "local" or "distant" items produced problems in regard to definition of local community. There were also too few cases of cross-locations (e.g., distant contaminators producing local contamination) for analysis.

More than a decade after the first studies suggesting a health hazard in the electromagnetic fields created by high-power lines and household appliances, the word most often used to describe the body of research is "inconclusive."

However, two areas of research are drawing increased scrutiny. One points to physiological changes that are now known to be caused by electromagnetic fields, or EMFs. The other focuses on the statistical link between childhood cancers and exposure to the fields.

Neither of the above articles includes information about the local situation, nor pins the problem to some distant locale.

An item was coded as having a **risk linkage** if the item refers to a connection between human exposure to the contaminant and contraction of a malady, regardless of the level of probability (or risk). Risk linkages included statements in stories such as "exposure to hydrochloric acid can cause burns" (Chicago Tribune, June 20, 1991), "some studies have linked high levels of radium with bone cancer" (Waukesha Freeman, April 12, 1991), and "toxic air pollutants such as airborne chemicals and metals are blamed for serious illnesses and are estimated to contribute to 1,500 3,000 fatal cancers a year, according to the EPA" (Chicago Sun-Times, June 3, 1991).

A headline was coded as a **risk headline** if it contained a risk linkage or any of a set of terms (e.g., toxic, poisonous, harmful, hazardous) we termed "risk signals." (See APPENDIX A, Section AE.) Risk headlines included "State steps up effort to detect dangerous ozone" (Milwaukee Journal, April 30, 1991) and "DA urged to take action on lead paint hazard" (Milwaukee Journal, August 23, 1991).

An item was coded as having a **problem frame** if the first three paragraphs contained information alerting readers to a problem or danger. For example, the second and third paragraphs from the beginning of the following Associated Press news story, published in the Eau Claire (WI)

Leader-Telegram on April 15, 1991, are evidence of a problem frame

WHITING, Ind. (AP) -- For more than a century, the giant Amoco Oil refinery has given this small northwest Indiana city a steady source of jobs and a solid tax base.

But it has also left behind a 16 million-gallon petroleum leak that could take 20 years to clean up, and the environmental dilemma has strained relations between local residents and their major industry.

"There's a lot of distrust," said Mayor Robert Bercik, whose grandfather worked at the refinery that opened 102 years ago. "People fear a big company."

An item was coded as having a solution frame if the first three paragraphs contained information about how problems or dangers are being dealt with, or might be dealt with (including being prevented). For example, the following first paragraph from a story in the January 5, 1991, issue of the Eau Claire Leader-Telegram is indicative of a solution frame:

Work is scheduled to resume in mid-January on the cleanup of six sites in Dunn and St. Croix counties contaminated with lead from a car battery recycling company.

An item can be coded as having both a problem frame and a solution frame. If, for example, a solution is depicted as uncertain (controversial, not totally effective), and does not effectively solve the problem, then the item could have a problem frame as well as a solution frame, because the problem, at least in part, remains. Relatively few--less than a quarter--of the items in our analysis had both a problem frame and a solution frame.

An item was coded as event-based if the information in the first three paragraphs was derived from a specific event (e.g., accident, speech, meeting, news conference), named in the story, that had occurred in the past week (or which the item termed "recent"), or would occur in the upcoming week. Reporter interviews of sources were not considered to be "events." An example of an event-based item can be found in an Associated Press story published January 2, 1991, in the Chicago Tribune:

ST. LOUIS, MO.--AP--A federal judge has approved a multi-million dollar plan to burn dioxin-contaminated soil from 28 eastern Missouri communities at a temporary incinerator to be built in the former town of Times Beach.

Later, the item states:

The incinerator plan, Nangle said in his ruling Monday, was a carefully negotiated solution to the "dioxin mess."

This story was also considered to have a solution frame.

### Community Pluralism

Based on the work of Dunwoody and Rossow (1989), we indexed [2.5] community pluralism by summing the rankings of each of the communities on the following variables: (1) population; (2) proportion of school

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[2.5] Whenever practical, social scientists try to employ more than one indicator, or measure, of a phenomenon. Socioeconomic status (SES), for example, is commonly assessed by measures of income, years of formal education, and occupational status. A set of such measures all relating to the same phenomenon (e.g., SES) can produce a stable or reliable indicator of the phenomenon than a single measure would, provided that all these measures correlate reasonably well with one another and represent various aspects of the phenomenon. If so, the measures can be standardized (a technique for putting different measures--e.g., education measured in years and income measured in dollars--on the same numerical scale for addition) and summed to form a "summed measure" (or "index") of the phenomenon. Cronbach's alpha is an indicator of the reliability of an index, based on how well the measures that comprise the index relate to one another. Our pluralism variable is an index, too. We used Cronbach's alpha to determine which mixture of measures produced an optimum set to comprise the pluralism index--high in reliability and as inclusive as possible of various individual measures, each of which represents a different facet of pluralism. Although it is an imperfect indicator, the telephone book Yellow Pages was used to determine the number of "Social Service Organizations" in each community, and the number of religious denominations (as major subheadings under the "Churches" listing). School information came from the state departments of public instruction. Dunwoody and Rossow (1989) had also added a measure of number of businesses per capita to their index. This measure was removed from the index in this analysis because it reduced overall reliability to an unacceptable alpha of .59. Removing the social service organization variable from the index improves reliability somewhat (.86), but results in some important loss in discriminatory power in the index. Therefore, it was kept in the index.

children (in grades kindergarten through 12) who are minorities or in private schools; (3) number of religious denominations; and (4) number of voluntary social service organizations. The index has an acceptable alpha of .74.

Because there is no standard criterion for dividing communities into various levels of pluralism, we used a more comparative approach by ranking the 362 news items according to the pluralism of their communities of origin. To establish sets of items from "High Pluralism" communities and from "Low Pluralism" communities, we then divided the items as evenly as possible into those groups. This technique yielded a group of 208 items from three "High Pluralism" communities (Chicago, Milwaukee, Waukesha) and five daily newspapers. The rest of the items were therefore from communities considered to be, relatively speaking, "Low Pluralism."

### Control Variables

Community covariates include **community reliance on manufacturing and toxic releases per industry**. To represent community reliance on manufacturing, we divided the number of people employed by manufacturers in each community (Census of Manufactures, 1990) by the population of the community. To represent toxic releases per industry, we divided Toxics Release Inventory [2.6] data for each community by the number of industrial facilities in the community (Census of Manufactures, 1990).

Media organization covariates were gathered by contacting each news organization to verify **publication frequency** (whether or not the paper is

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[2.6] The Superfund Amendments and Reauthorization Act (SARA) of 1986 requires manufacturers in a variety of industries to report annually the amount of hazardous chemicals they have released into the environment or have transferred to treatment or disposal facilities. The U.S. Environmental Protection Agency (EPA) gathers this information and makes it publicly available through a national computerized database termed the "Toxics Release Inventory" (TRI), which is updated annually.

a daily), editorial staff size (the number of reporters and non-management editors), presence of a science or environmental reporter (whether or is assigned to cover either or both of these areas regularly), and ownership. Based on a measure developed by Olien et al. (1988), we discriminated the kind and locale of ownership with the following continuous scale: (1) local, independently owned; (2) owned by chain, local headquarters; (3) owned by chain, headquarters in same state; (4) owned by chain, headquarters out-of-state. To represent the staff generation control variable, each item gathered in the analysis was coded according to whether local news staff members generated all, part, or none of the item.

## RESULTS

Because all items in this analysis attribute contaminants to agents in the same "location" as the contaminant, we are able to compare dependent variables (media use of risk linkage, risk headline, problem frame, solution frame, and event base) based on pluralism of the community and location of the contamination.

### Risk Content

Nearly half (48%) of the items in our analysis contain a risk linkage. Our first hypothesis (H1) proposed that newspapers in more pluralistic communities will be more likely than newspapers in less pluralistic communities to link local contamination from local agents to threats to human health.

Table 2.1 shows the results of our analysis as adjusted to account for the influence of the control variables.

Table 2.1  
 Risk Linkage, Problem Frames, Solution Frames, Event Base  
 and Risk in Headline  
 by Community Pluralism  
 and Contaminator/Contaminant Location  
 (Excluding Contagious Diseases)

	Pluralism of Community						
	LOW			HIGH			
	LOCATION:			LOCATION:			
	Local	Distant	Generic	Local	Distant	Generic	
Dependent:							
Risk Linkage	30%	52%	84%	47%	30%	47%	
Risk Headline	14%	4%	40%	21%	20%	18%	
Problem Frame	62%	91%	81%	80%	78%	84%	
Solution Frame	50%	22%	26%	38%	33%	51%	
Event Base	81%	73%	32%	66%	63%	50%	
N Items=	56	55	43	76	70	62	362

(Percentages adjusted by control variables)



In more pluralistic communities, 47% of the items concerning local contamination (i.e., both the contaminator and contaminant are local) include a risk linkage. In less pluralistic communities, only 30% of the items concerning local contamination include a risk linkage. Epsilon in this case is .17 (.47 - .30). Therefore, H1 is supported.

The adjusted percentages in Table 2.1 also show that low pluralism media are more likely to publish stories with risk linkages when the contamination is distant rather than local, whereas high pluralism media are more likely to publish stories with risk linkages when the contamination is local rather than distant. These patterns tend to support the idea that media in more pluralistic communities might be playing more of a local "feedback" or "watchdog" role, while media in less pluralistic communities might be playing more of a local "booster" role, in part by effectively portraying distant communities as "riskier" to health than one's hometown.

Particularly noteworthy, and somewhat surprising, is that low pluralism media tend to stress risk linkages when publishing "generic" contamination stories (84% of these stories as adjusted), in sharp contrast to the lower presence of risk linkages otherwise in any of the categories of contamination items run by low or high pluralism papers.

Only about 19% of the items in the analysis were topped by a headline with a risk linkage or, much more commonly, a risk signal. In a pattern somewhat similar to that for risk linkages in stories, these risk headlines were much more prevalent in generic stories published by low pluralism media (about 40% of the generic items) than in any of the other categories of stories published by high or low pluralism media. Otherwise, differences in uses of risk headlines are relatively small across categories of pluralism and contamination location.

### Event Base

As would be expected in news accounts, most items in the analysis (61%) are based on events that occurred in the recent past or will occur in the near future. The reliance of low-pluralism media on events to drive their coverage of local contamination is particularly noteworthy, because the vast majority of this coverage (81% as adjusted) is event-based.

In contrast, generic stories tend to be less event-based than other kinds of stories, especially in low-pluralism papers where only about a third of the generic stories are event-based. Editors of low-pluralism papers seem attracted to the more feature-like stories about generic contamination, probably because these stories are less timebound and therefore can be used whenever space permits.

The reason that generic contamination stories in low pluralism media seem to stress risk linkages, and are spotlighted to some extent by risk headlines, is not clear. One possibility is that this configuration of risk information is part of a pattern that effectively makes other places seem riskier than the local community, which fits into the "booster" role of less pluralistic papers. Another is that these generic stories might provide information about risks to health relevant to the local community, but these risk linkages are not overtly localized in the items because to do so might pinpoint local contaminators and therefore raise local conflict. The second strategy might satisfy the small community editor's professional desire to disseminate information essential to the community (Donohue et al., 1989) while still minimizing local conflict information in the low pluralism news media.

### Story Frames

The vast majority, 79%, of the items in this analysis have problem frames. This result might be expected, because journalism typically deals with alerting audiences to problems or dangers. Our second hypothesis proposed that newspapers in more pluralistic communities will be more likely than newspapers in less pluralistic communities to employ problem frames in stories about local contamination from local agents.

As Table 2.1 shows, 80% of the items concerning local contamination in high pluralism newspapers had problem frames, as compared to 62% of the same kind of item in low pluralism newspapers (epsilon = .18). Therefore, our second hypothesis is supported.

Although the prevalence of problem frames is about even in high pluralism papers, regardless of the location of the contamination, low pluralism papers tend to stress problem frames much more when the contamination is distant or generic than when it is local.

Fewer (37%) of the items in our analysis had solution frames. Our third hypothesis proposed that newspapers in less pluralistic communities will be more likely than newspapers in more pluralistic communities to employ solution frames in stories about local contamination from local agents.

As Table 2.1 shows, 50% of items about local contamination in low pluralism papers had solution frames, as compared to 38% of the same type of item in high pluralism papers (epsilon = .12). The results support H3 (.50 - .38), although not strongly.

In a pattern similar to that for problem frames, solution frames are more evenly prevalent across contaminant locations in high pluralism papers than in low pluralism papers. Solution frames in low pluralism papers are used much more commonly in reporting local contamination than in reporting contamination that is distant or generic. Solution frames are used almost as much as problem frames when low pluralism papers report on local contamination, whereas the use of problem frames dominates the use of solution frames when high pluralism papers report local contamination. High pluralism papers are more likely to publish generic stories with solution frames than are low pluralism papers, which might indicate heightened seeking, on the part of high pluralism papers, of alternate solutions to local contamination problems via stories that review solutions tried in many other places.

Although the patterns are not as strong as had been expected, the use of these frames--in particular, problem frames--seems to be consistent with the role of the press in less pluralistic communities as local boosters and consensus-builders. In the pages of less pluralistic papers, contamination is more problematic elsewhere, and solutions are less forthcoming than at home. In comparison, papers in more pluralistic communities are more likely to play a "feedback" role by depicting local contamination in the context of a problem, and apparently attempting to feed information about solutions into the local social system by being sensitive to information about solutions elsewhere.

None of the covariates had strong (reportable) relationships with the dependent variables.

## CONCLUSION

Based on the conflict/consensus model of Tichenor et al. (1980), expected news media in less pluralistic communities to be boosters and consensus-builders in their communities, and not as likely as news media in more pluralistic communities to publish information that points fingers at institutions (e.g., local businesses and industries) or individuals in the community, or that could otherwise raise local concerns and conflict. We proposed that information in local mass media signalling that local agents are contaminating the local environment and posing health risks is conflict-generating information and, therefore, will be controlled in various ways in the interest of community stability. Such control would be expected to vary by community structure and result in different configurations of information about local contamination in the local news media, especially as represented by risk linkages, problem frames, and solution frames.

Generally, our results confirmed that community pluralism is related to the configuration of local mass media information about health risks and other problems stemming from environmental contamination in the local community, and elsewhere as well, in ways consistent with the theory. Some specific findings:

- o The location of the contamination (local, distant, or generic) had a larger impact on use of risk linkages and framing (especially problem framing) in less pluralistic media than in papers in more pluralistic communities, indicating that location was a more sensitive matter to less pluralistic papers, and entered more strongly into news judgment (i.e., the journalist's decisions about what information to include, exclude, and stress in news accounts).

- o Papers in more pluralistic communities were more likely than papers in less pluralistic communities to link contamination from local agents to threats to human health, and more likely to frame stories about contamination from local agents in the context of a problem.
- o Papers in less pluralistic communities were somewhat more likely than papers in more pluralistic communities to frame local contamination stories in the context of solutions to the problem, and to depict contamination elsewhere more strongly in terms of risk linkages and problem frames.

Although our research does not examine what audiences learn about local risks from the mass media, it is possible that the patterns of media coverage we found affect the amount of information about local risks available in communities. As compared to residents of more pluralistic communities, those who live in less pluralistic communities might get from their local news less information about possible health risks and other problems caused by local pollution sources. Further research might examine this possibility.

Our study also found some interesting differences in the ways high pluralism media use generic contamination stories (i.e., those concerning pollution sources that are portrayed as being everywhere or anywhere) as compared to the ways low pluralism media use them. These differences might reflect the effects of community structure on news judgment and, therefore, information configuration in the community. In particular:

- o In high pluralism communities, generic stories appear to be sources of additional information about alternate solutions to problems of environmental contamination that have been considered, tried or implemented elsewhere.

o Media in low-pluralism communities tend to select predominantly feature-type generic stories that contain risk-linkage information and spotlight many of them with risk headlines. Whether this pattern reflects local boosterism, or an attempt to convey locally relevant risk information in a non-sensitive way, is unclear. Further research could investigate these processes.

In addition, it would be fruitful to investigate the kinds of inferential cognitive processes audience members employ when media present them with generic stories with risk linkages. Under what circumstances do people infer that this information might be locally and personally relevant?

Our results indicate that public information efforts in regard to local sources of toxic contamination must go beyond the usual sender-based concerns about effective message designs to take into account community structure, in particular community pluralism. As Grunig and Hunt (1984) note, public information strategies that might be effective in metropolitan areas might be counter-productive in small, rural communities, and vice-versa.

**CHAPTER THREE:**

**SUPERFUND CASE STUDIES**



## Introduction

This chapter explores reporters' use of risk information in a different way, by examining newspaper coverage of three Wisconsin Superfund sites. The intentions of these three case studies are:

- o To focus specifically on Superfund sites and their attendant risks;
- o To examine the use of information about level of risk within coverage of complex risk issues that involve numerous actors and that are not resolved for years; and
- o To study not only published stories but also journalists', editors' and sources' perceptions of their behaviors in these settings.

We selected three Wisconsin sites that fit a number of criteria. The three sites had generated media coverage throughout their issue lifespans and were still in the process of resolution. In each case the Superfund location was served by at least two newspapers of different sizes, usually from different communities. Finally, in each case the Wisconsin Division of Health had completed studies of health risks posed by the site and had reported those risks to residents and to journalists. Thus, specific information about the type and extent of health risks was available to interested parties.

Our primary questions were as follows:

- o What were the dominant frames within which journalists presented information about the Superfund sites, and how did those frames change over time for any one site?

- o What role did information about the level of hazard play in coverage of these sites?
- o What was the nature of the relationships between journalists and sources?
- o Did characteristics of the media organizations themselves influence coverage?
- o Did the nature of the community influence newspaper coverage of a site?

The three sites chosen for the case studies were (1) National Presto Industries Site in Eau Claire, (2) Better Brite Chrome and Zinc sites in De Pere, and (3) Sheboygan River and Harbor and the neighboring Kohler Company Landfill sites in Sheboygan.

In each case, the two primary investigators gathered Superfund stories from available newspapers for analysis and then journeyed to the site to interview journalists, editors and sources. We also interviewed the EPA remedial project manager responsible for each site at EPA Region 5 offices in Chicago. **APPENDIX B** lists the individuals interviewed for each site. It was impossible to secure archival tapes from local television or radio stations, so, although those media also covered the sites on a regular basis, we do not analyze them here.

Each site was sufficiently different that we will report findings separately. At the end of the chapter we discuss commonalities. Although we are hesitant to generalize from sample size of three, some of the patterns that these case studies share are suggestive.

National Presto Industries Site in Eau Claire

**History.** Situated on land between the communities of Eau Claire and Chippewa Falls, the 325-acre site that eventually became National Presto Industries was originally owned by the federal government and purchased by National Presto in 1948. The company initially produced consumer goods on the site but, in 1954, dedicated the plant to producing metal bodies for projectiles and shells under a contract with the U.S. Department of the Army. The company ceased operations on the site in the late 1970s, and the facility is now on Department of Defense standby status. National Presto continues to thrive as a producer of small appliances at other plant sites and maintains its national headquarters in Eau Claire.

Wastewater generated at the facility originally was discharged to seven seepage pits on the property. When serious overflow problems developed in 1954, National Presto began pumping the wastewater into a former sand and gravel pit. In the late 1960s, the company built three new wastewater lagoons. At one time, up to 2.5 million gallons of wastewater per day were being discharged into the lagoons.

National Presto also disposed of spent forging compound on the site. The compound, which contained roughly equal parts of asphalt, graphite and mineral oil, was shuttled to an independent location on the property from 1967 to 1969 but also showed up in some of the lagoons.

In the early 1980s, the Wisconsin Department of Natural Resources (DNR) began to test for the presence of contaminants in the National Presto vicinity. In 1983 the DNR detected traces of six volatile organic compounds (VOCs) and five heavy metals in one of the lagoons. Then, in 1985, the DNR discovered that some private wells on the north side of Eau Claire and in the unincorporated Town of Hallie, which is immediately adjacent to the National Presto site, contained levels of volatile organic

compounds that exceeded state standards. In 1986, the DNR linked the National Presto wastes to the contamination of Hallie wells.

The National Presto site was placed on the National Priorities List in 1984. In 1986, National Presto Industries agreed to cooperate with U.S. EPA and Wisconsin DNR to conduct a Remedial Investigation and Feasibility Study of the site. The remedial investigation detected the presence of organic and inorganic contaminants in the soil and waste on the site and confirmed the presence of VOCs in nearby wells at levels exceeding Wisconsin standards. DNR in 1986 ordered National Presto Industries to begin furnishing nearby residents with uncontaminated water; National Presto balked.

The Wisconsin Division of Health, in conjunction with the Agency for Toxic Substances and Disease Registry, examined the health risks posed by the site and in 1989 warned that residents in the contaminated area should avoid drinking or using the contaminated water. In a public meeting on April 5, 1989, Division of Health environmental engineer Kim Bro told his audience that tests had revealed the presence of four VOCs in excess of governmental standards. The compounds, he explained, cause cancer in laboratory animals, thus raising a concern that they could also cause cancer in humans. The Wisconsin Division of Health recommended that individuals in the area:

- o Consume water from an alternate source if well water has VOC levels exceeding government standards;
- o Avoid inhaling VOCs, which evaporate from tap water, by installing vents in the bathroom and in areas where dishes are washed and by taking shorter, cooler showers and baths;

- o Discourage children from entering National Presto Industries' grounds, where they could be exposed accidentally to contaminants in the soil.

In 1990, EPA recommended that the Hallie township build its own water system to bypass the contaminated wells. Later that year, National Presto Industries obtained Department of Army funding to help ameliorate the problem and announced it would make those funds available to help pay for the new water system.

At this writing, the Hallie water system is nearing completion. National Presto is cleaning up its own site, apparently with the help of additional funds from the Department of the Army. And state and federal officials are on the verge of announcing that National Presto Industries will be held responsible not only for contaminating water in the Hallie area but also for contaminating Eau Claire city wells. These contaminated wells were discovered in the early 1980s, but studies had only recently linked the contamination to the National Presto site.

**Media Coverage.** Because the National Presto site is situated between Chippewa Falls and Eau Claire, the daily newspapers in those two cities both define the contaminated site as local news. The Chippewa Falls Herald-Telegram, an afternoon paper, serves a community of more than 12,700 and had a 1992 circulation of 8,479. The Eau Claire Leader-Telegram, also an afternoon paper, is the newspaper of record for a community of some 55,000 individuals and, in 1992, reported a circulation of 31,753.

What were the dominant frames in the newspaper coverage and how did they change over time? The newspaper stories about the National Presto site over an eight-year period (1985-92) do indeed emphasize different dimensions of the issue, and the movement from one focus to another looks logical. Here is a listing of frames as they developed over time:

Frame 1 (1985-86): Well testing reveals the presence of contamination;

Frame 2 (1986): Are the contaminants harmful?

Frame 3 (1986): The federal government steps in via Superfund to administer the clean up;

Frame 4 (1986): Who is responsible for the contamination?

Frame 5 (1986 on): How can we clean up the problem in a politically acceptable way?

Four patterns are of interest here; we will articulate a fifth in the next section.

First, the frames are not equally represented in the sets of stories. In fact, some frames have extremely short lifespans while others remain dominant for, literally, years. The frame of the overwhelming majority of stories in this case study was the last one: Given the presence of a problem, how can we fix it? This "solution" frame dominated coverage, in all likelihood, because cleaning up a Superfund site takes years. In this case, the first temporary solution -- requiring National Presto to furnish clean water to residents whose wells were contaminated -- was proposed in 1986. The final solution -- construction of an independent water system for the township of Hallie -- was just nearing completion in 1992.

Second, the two newspapers seemed to move sequentially through frames. They rarely cycled back to pick up old frames. Once National Presto Industries had been identified as the source of the contamination in 1986, for example, we rarely encountered stories subsequently that reiterated that position. That piece of information had become an "assumed" part of the story.

Third, stories were overwhelmingly event-oriented, suggesting that the story frames were driven as much -- if not more -- by source actions as by reporter decisions. When EPA held a public hearing to report on the litany of possible solutions to the contaminated water wells in Hallie, stories reflect that "solution" frame.

Yet, fourth, it is also clear that the frames suggested by the events were interpreted -- by journalists and, likely, everyone else -- within the particular social context of the communities involved. In this case, the unincorporated town of Hallie decided to resolve its water problem by building its own municipal water system, thus abandoning the private -- and now contaminated -- wells that furnished water to many Hallie residents. Driving that very expensive decision was a complex political relationship among Chippewa Falls, Eau Claire and Hallie. Both cities coveted pieces of Hallie and annexed when they had an opportunity. Hallie asserted its independence fiercely. The years-long "solution" frame, thus, was immediately placed within a very territorial social context. Janean Marti, Chippewa Falls bureau chief for the Eau Claire Leader-Telegram, for example, when asked what the National Presto Superfund story was really about, responded that it had been predominantly about "a township trying to preserve its identity." Another reporter, Bill Gharritty of the Leader-Telegram, responded similarly that a large component of the story dealt with "turf battles."

How did level of health hazard fare as a story frame? Hazards to health flared briefly as a frame in 1986 and, again briefly, in 1989. The first flare followed the initial stories about finding contaminants in Hallie wells. The second flare was the direct result of a U.S. EPA public meeting on April 5 at which Wisconsin Division of Health environmental engineer Kim Bro discussed the results of the division's study of poten-

tial health impacts from the VOCs found in the water.

But those flares were short-lived. More significant is how little space was devoted to questions of health risk over the lifespan of this Superfund site. Among the literally hundreds of stories about National Presto, no more than a handful even mention threat to health. We speculate on reasons why at the end of this case studies chapter.

Information about level of risk in that handful of stories, for the most part, reproduced the main themes articulated by sources. The uniform message of the stories -- that the contaminants presented a small but significant health risk -- survived different perceptions of the risk by journalists writing the stories.

Eau Claire Leader-Telegram reporter Janean Marti, for instance, felt that the risk posed by the contaminants was so small that it bordered on being insignificant, and she became concerned that sources were pushing residents to be more worried than they need be. When she received one "alarming" memo from a governmental official that advised Hallie residents to keep their children away from the National Presto site, Marti sought out another source, who "belittled" the risk, to provide some balance in her story.

By way of contrast, Mark Baker, editor of the Chippewa Falls Herald-Telegram, never questioned the message that the risk was a significant one. "The risk was real," he said. Thus, the only issue that mattered to his newspaper, he asserted, was how to help Hallie residents fix the problem.



Although stories that contained risk information used official risk estimates uncritically, it is not clear that reporters or editors understood the information they printed. The one instance we found in which a newspaper criticized a risk estimate, in fact, supports the argument on behalf of ignorance: The most commonly cited characterization of risk at the National Presto site was that the levels of VOCs in Hallie well water exceeded Wisconsin's risk standard, which limits the level of risk to no more than one death for every 1 million people who drink the water every day for 70 years. Specifically, the Wisconsin DNR calculated that the level of contaminants in the wells raised the risk to one death in 100,000.

In an October 24, 1987, editorial, the Eau Claire Leader-Telegram got the risk estimate wrong. It somehow mistook the level of risk as posing "a one in one hundred thousand risk of contracting cancer from drinking 70 gallons of water, per day over 70 years" (our emphasis) and devoted the editorial to a critique of governmental officials who persist in pushing communities to do something about risks that are so small. Concluded the editorial, "The EPA and DNR should do their part by disseminating realistic information. Warning people not to drink 70 gallons of water a day for 70 years hardly qualifies." No one at the newspaper apparently knew enough about risk levels to have questioned the original, inaccurate, assertion.

What was the nature of the relationships between journalists and sources? With few exceptions (see section on risk above), reporters and editors expressed confidence in such agencies as U.S. EPA and the Wisconsin DNR to determine the level of risk and to convey that information to various constituencies. The journalists we interviewed brought little skepticism to their interactions with these sources.

Did newspaper resources make a difference in extent of coverage? Although the Eau Claire Leader-Telegram's circulation is nearly four times that of the Chippewa Falls Herald-Telegram, it is not clear that the former produced more or substantially different coverage than the latter. While the number of stories published in the two newspapers early in the controversy did seem to reflect that resource disparity (i.e., the Chippewa Falls paper routinely published fewer stories than did the Eau Claire paper in the mid 1980s), by 1989 both newspapers were running dozens of stories each year. Examining just the numbers of stories at that time without seeing the newspapers themselves, in fact, might convince someone that the two newspapers were of similar size and wealth. Why didn't resources get reflected in the coverage? Here are two possible reasons:

- o Although one newspaper was larger than the other, both are small, relatively speaking. Thus, neither could afford to assign an individual full-time to the Superfund site story. Instead, the reporter covering National Presto at any one time had to fit the coverage in with all the other stories for which he or she was responsible.
- o Both newspapers responded to events and only rarely initiated stories. That strategy would produce similar numbers of stories as long as the newspapers responded to the same events.

Did the nature of the communities influence newspaper coverage? We saw some patterns in the coverage that suggest that social structure indeed had an impact. Both these communities are relatively small: Chippewa Falls has fewer than 15,000 residents and Eau Claire has fewer than 60,000. In the terminology of Tichenor, Donohue and Olien, such communities are often structurally homogeneous. One would expect newspapers in such towns to practice consensual journalism. That is, one would expect

them to support the social fabric by playing down internal community conflict.

Such conflict was a distinct possibility here, for the contaminator was National Presto, a local company that, at one time, had been the biggest employer in the area. Exacerbating the issue was the company's reaction: It tried very hard to avoid responsibility for the contaminated groundwater and to avoid paying for cleanup.

How does a newspaper in such a community reflect reality when the apparent villain is a local good corporate citizen who is balking at taking responsibility for a problem? You cannot ignore the issue or the company. But you can play down the company's role. Thus, you don't highlight the company as a central player in the drama. You don't cover the company aggressively. It never becomes the ultimate villain in your stories. Those patterns, we argue, characterized treatment of National Presto in the coverage by the Eau Claire Leader-Telegram and were also reflected in the early coverage by the Chippewa Falls Herald-Telegram.

But what illuminated this pattern most vividly, we felt, were the repercussions that apparently stemmed from a change in coverage of National Presto initiated by the Chippewa Falls newspaper in the late 1980s.

Initial coverage of the National Presto issue by the Herald-Telegram had all the markings of supportive journalism. The newspaper had been running very few stories about the site, and those stories rarely took National Presto to task. But in 1987 a new editor, Mark Baker, came on board, and he took a very different tack. To Baker, National Presto's behavior made the company "a poor corporate citizen," and he felt his newspaper's coverage should reflect that. Subsequent stories were so hard on National Presto, said Baker, that the company complained about the new

editor to the newspaper's publisher. The publisher subsequently asked Baker for an explanation. Baker, in urging his newspaper to actively serve as a community watchdog, had apparently violated assumptions about the role of that newspaper in Chippewa Falls.

### Better Brite Chrome and Zinc Sites in De Pere

**History.** The Superfund site is really two industrial sites within a half mile of each other, both located in a residential area of De Pere, WI, approximately a quarter mile from the Fox River. One of the sites began operation as a chromium plating facility called Better Brite Plating, Inc. in the 1960s; the company then opened an additional chromium plating facility nearby in the mid-1970s. The older of the two sites was converted to zinc plating by the late 1970s.

Trouble dogged the two sites. The Wisconsin Department of Natural Resources issued a number of citations to the company in the late 1970: response to what DNR staff member Doug Rossberg called "substantial contamination" at the chrome plating site. In 1978, for example, the DNR received complaints about frozen yellow water behind the chrome shop. Inspections indicated extensive chromium contamination of soil and water on the site. The chromium plating tanks, situated largely below ground, were apparently leaking "like sieves," said Rossberg. DNR estimated that from 20,000 to 60,000 gallons of plating solution may have escaped from the tanks.

Things at the zinc site were not much better. In the early 1980s, DNR found elevated levels of cyanide, chromium, zinc, cadmium, lead, silver, selenium, copper and nickel in the soil. The site also contained drums of sludge contaminated with cadmium.

The company made some efforts in 1979 to contain the contamination but the state was not satisfied and, in 1980, filed suit to force Better Brite to clean up the chromium shop. The company apparently did not comply with the order and, in 1985, filed for bankruptcy and discontinued operations at the chrome site. The zinc site continued operating under the aegis of an examiner/trustee, however. In 1986 the examiner/trustee purchased the site and continued the business until 1989. Operations at the renamed Zinc Shop ceased in July 1989.

EPA first inspected the chromium site in 1984 and, two years later, sent an emergency response team to investigate and begin cleaning up. Personnel removed underground tanks, other storage tanks and approximately 83 tons of contaminated soils. The EPA team also investigated the zinc plating site in 1986; in 1987 DNR installed monitoring wells there.

Still, in 1988, neighbors of the now-defunct chromium plating plant complained that chromium-contaminated water was collecting in their back yards. The sites were placed on the agency's Superfund cleanup list in 1990. That same year, EPA installed an on-site water treatment system to treat up to 5,000 gallons of chromium-contaminated water per day; the treated water could then safely be discharged into the De Pere sanitary sewer system.

In 1989 the chromium plating building was sold and removed by the owner. The area of the building was then capped with clay, and a fence was installed. A second EPA assessment of the zinc plating site in 1990 led to the removal of solutions and the decontamination of vats at the site. That same year, EPA installed a small groundwater sump at the zinc site.

Also in 1990, the Wisconsin Division of Health began a preliminary assessment of the health risks posed by the two sites. It reported to community in 1991 that, although cleanup efforts had left some contamination behind, the chromium still present at the sites poses no health risk to neighbors. The Division of Health inspectors did worry, however, that contamination might still reach the De Pere drinking water supply and expressed concern that one report of high levels of lead in the soil near the chrome shop could signal a health hazard.

As of this writing, the Wisconsin Department of Natural Resources has been granted authority to coordinate the remaining cleanup operations and is conducting a remedial investigation to explore options for doing so.

**Media Coverage.** De Pere is served by the weekly De Pere Journal, which reported a 1992 circulation of 3,502. The present publisher, Paul Creviere, is the second generation of Crevieres to own the Journal. Paul's father bought the newspaper earlier in the century and relinquish control to his son in 1964. Paul's wife, Marie, works as editor; they hire one other reporter to round out the staff.

Just north of De Pere, where the Fox River empties into Green Bay, sits the community of Green Bay, a city of more than 96,000. Two daily newspapers serve the city, the morning News-Chronicle with a 1992 circulation of 9,830, and the afternoon Press-Gazette with a circulation of 59,410.

What were the dominant frames in the newspaper coverage and how did those frames change over time? The frame of coverage throughout the 1970s was very much one of finding contamination at the two Better Brite sites. The focus on the presence of contaminants continued into the 1980s, as agencies continued testing soils and water.

The 1980s produced a steady stream of stories that focused on what Better Brite was doing or should have been doing about the contamination, as well as on legal efforts to force the company to take more concerted action. By the late 1980s, the dominant coverage frame had turned to EPA efforts to clean up the sites. From then on, the two primary focuses of stories appeared to be clean up activities and continued legal actions to obtain redress from the now-bankrupt Better Brite company.

Coverage by the three newspapers of this Superfund site, particularly coverage in the Green Bay daily newspapers, shows more frame cycling than we discovered in the National Presto case study. The cycling seems to be a function of two things: journalists' reliance on officials to give them a story frame and the unfolding nature of the Better Brite sites.

For example, the nature and extent of contamination at the National Presto site was relatively quickly established, so the "what are contaminants and where are they" frame enjoyed an early but brief lifespan; it never really emerged as a dominant frame again. In contrast, exploration of the nature and extent of contamination at the Better Brite sites has stretched over a period of years. Each new finding over the years produced a recurrence of the "what are the contaminants and where are they" frame. Another reason for this recurring frame may be that at least one of the contaminants -- chromium -- is visible. Neighbors' periodic complaints about pools of yellow water after a heavy rain may also have helped promote the return to that theme.

The frames also vary by newspaper. Specifically, the weekly De Pere Journal appears to have covered this lengthy issue very differently than did the two daily newspapers in Green Bay. For example, the "what are the contaminants and where are they" focus and attention to Better Brite as a reluctant actor whose civic responsibilities must be wrung out of them by

a court are largely missing in the Journal coverage. We will return to this difference later, when we discuss differences that might be attributed to the nature of the communities.

How did level of health hazard fare as a story frame? As in the National Presto case, health hazards got some play early in the Better Brite story and again when the Division of Health reported on its preliminary health assessment in 1991. But those were not the only moments when the health frame was front and center. That frame cycles throughout the years of coverage -- again predominantly in the Green Bay daily newspapers -- in a pattern quite different from our other case studies. In many ways, hazards to health continue to the present as a recurring and, perhaps, dominant frame for this site.

This pattern seems peculiar when one realizes that, among the three case studies examined here, the Better Brite sites may be the least hazardous. The Wisconsin Division of Health's preliminary assessment : 1990 found that remaining levels of the most ubiquitous contaminant at the sites -- chromium -- did not present a health risk. Health officials' primary worries were for the future: that investigators might yet detect abnormally high levels of lead on the sites and that contamination from the sites might eventually find its way into the city water wells.

What accounts for the continued media attention to health impacts are the efforts primarily of one family, whose home abuts the chromium plating site, to keep the theme alive. For years, family members have witnessed yellow pools of water in their back yard, yellow-tinged snow, and yellow water flooding into area basements during spring rains. Despite official conclusions that the chromium contamination does not pose a significant threat, family members complain that it has caused a variety of health problems. As one of them told a Press-Gazette reporter:



"It's not stretching it to compare this to Love Canal. In our family everyone has some nerve damage. We've had cancer in one of our daughters. And we're all\*especially susceptible to skin rashes."

Reporters have generally been sympathetic to the concerns of neighbors of the site. Thus, health concerns have remained a prominent theme in coverage. Again, the exception to this pattern is the De Pere Journal.

Notably, the direction of coverage within this frame has been to posit the contamination found at these sites as hazardous indeed. For example, although the Division of Health preliminary assessment in 1991 basically concluded that the health risks were minimal, the lead on a resulting story by one Green Bay newspaper asserted, "The former Better Brite plating shops in De Pere pose health problems to neighbors, a new study suggests." Later, the story explained: "The sites pose a public health hazard because of the potential for ingestion of on-site soil contaminated with lead and exposure through skin absorption to chromium-contaminated surface water or seepage water." The story contained no information about level of risk.

In fact, we could find no stories in the three newspapers that "explained" the risks in any detail. Most references to hazards, like the one above, simply stated that a risk existed and then often went on to offer prescriptive advice (e.g., "Health officials recommend that residents avoid contact with yellow-tinged puddles...."). One reporter indicated that he tries to avoid numbers when writing about risk. "Whose statistic are you going to use?" asked Terry Anderson, the Green Bay Press-Gazette reporter who wrote the passages above. Anderson feels it is dangerous to pick any one source as the primary source of risk information. Additionally, he feels readers will have trouble interpreting numbers. The bottom line for readers, he says, is that they want to know

whether they are safe.

Did reporters believe that the site presented demonstrable risks to health? It is not clear. Anderson professes uncertainty. "I couldn't tell you" if the contaminants pose a risk, he said in an interview. He, like other reporters we interviewed, respects the level of worry apparent among the few vocal families in the site neighborhood.

What was the nature of the relationships between journalists and sources? As with the National Presto site, we encountered a relatively benign atmosphere. Journalists treated information from EPA and such state agencies as the Department of Natural Resources and the Division of Health uncritically. Stories routinely criticize the lethargic nature of the process but, as DNR Public Information Officer Dave Crehore notes, "People have sort of resigned themselves to this slow-moving project."

Did newspaper resources make a difference in extent of coverage? The answer in this case study is an emphatic yes. Although editors and/or reporters at all three newspapers in this study claimed to write Better Brite stories when "news" occurs, the total amount of coverage varied rather directly by newspaper size, from the largest of the three, the Green Bay Press-Gazette, to the smaller of the two dailies, the Green Bay News-Chronicle, and finally down to the smallest paper, the De Pere Journal.

In fact, the Press-Gazette stands head and shoulders above the other two not only in amount but also in type of coverage. While the News-Chronicle and the De Pere Journal stuck pretty closely to events, the Press-Gazette intermittently produced more reflective pieces. For example, a story in 1988 focused on the troubles of one family whose house abuts the chromium plating site. In 1989 the newspaper returned to troubled families in the area for another story and did a historical ret-

rospective on the site in the same issue.

The reason for such different behavior, we argue, is resource-based. The Press-Gazette, a newspaper with a circulation of more than 50,000, can afford to allow some reporters to specialize. One of their specialists is Terry Anderson, an environmental reporter. Better Brite is on his beat.

To Anderson, the Better Brite story is not only news but an opportunity to show readers that, to paraphrase him, businesses need not be big to create an environmental hazard. Even small, seemingly innocuous companies can saddle communities with risks. He treats Better Brite as an ongoing story, touching base periodically with EPA, DNR and with involved residents. He says he does some "enterprise reporting," stories that are not event-based, but that he, like most reporters, has little time for such efforts. Indeed, most of his Better Brite stories are sparked by hearings, meetings, official reports and the like.

The bottom line, however, is that the ability to field a reporter with some environmental expertise, someone who has remained with the Better Brite story over the years, has allowed the Press-Gazette to give its readers a much more extensive accounting of the sites. The Press-Gazette coverage is by far the best informed and most comprehensive coverage that we examined.

Did the nature of the communities influence newspaper coverage? We think the answer is, again, yes. Here the interesting comparison is between the daily Green Bay newspapers and the weekly De Pere Journal.

Recall that Tichenor, Donohue and Olien argue that newspapers in more homogeneous communities have a greater stake in supporting the prevailing power structure, while those that serve more heterogeneous communities are more likely to be critical. In this case study, the homogeneous community is De Pere; the heterogeneous community is Green Bay. And the newspapers

in these two communities indeed covered Better Brite in ways that reflect that "consensual vs. conflictive" difference.

For example, while the Green Bay newspapers did not hesitate to frame the (now gone) owners of Better Brite as bad guys who balked at cleaning up the contaminated sites and then, by declaring bankruptcy, fled their responsibilities entirely, the De Pere newspaper took a very different tack. The Journal stories not only avoid the issue of who is to blame but seem to have ignored the former owners entirely.

The Journal also took a different approach to risk. While the Green Bay newspapers seemed occasionally to play up the health risk angle, the Journal played it down. For example, recall that the Green Bay Press-Gazette began its story about the Wisconsin Division of Health's preliminary health report in 1991 with the following lead: "The former Better Brite plating shops in De Pere pose health problems to neighbors, a new study suggests."

Contrast that with the De Pere Journal lead on the same story: "'We have alleviated the immediate threat to humans and the environment,' David Linneer, U.S. Environmental Protection Agency (EPA) Remedial Project Coordinator, said in reference to the initial clean up at the Better Brite chrome and zinc shop sites in west De Pere."

Behind these very different frames, we think, are important community differences that are reflected in newspaper behavior. The Green Bay newspapers serve a large and varied community that has wrestled with its share of environmental polluters over the years. Reporters and editors don't soft pedal stories about damage done by local paper mills, and Better Brite looms as just another in the panoply of polluters.

The De Pere Journal, on the other hand, serves a small, homogeneous community and its staff is proud of the newspaper's ties to the town. The newspaper clearly views itself as part of the support network for the community and, we think, worked to frame the Better Brite issue in ways that downplayed a story that seemed to reflect poorly on the town, on local government, and on long-time city residents who owned the Better Brite company.

All three Journal staff members whom we interviewed, for example, repeatedly asserted that the Better Brite issue, while a legitimate story, was not that important an issue in De Pere. The residents of De Pere, they said, were largely indifferent to the sites. That indifference was understandable, they noted, because the sites pose no risk to the community at large. Officials have pronounced the contamination harmless, and city residents "have no reason to doubt what (officials) tell us."

The publisher and editor of the Journal also recalled the former Better Brite owners favorably. The family was active in the local chamber of commerce and would give generously to civic endeavors, they noted. Better Brite was a good, well-run company, they said, whose owners knew nothing about the pollution at the time.

The bottom line for the De Pere Journal, it seemed, was to attend to the news dimensions of the Better Brite issue when they occurred but to define the larger story as a success story, as a tale about a relatively benign environmental problem that is being handily solved.

### Sheboygan River & Harbor and Kohler Landfill Sites

**History.** About 50 miles north of Milwaukee, the Sheboygan River empties into Lake Michigan. The harbor there has long been a prominent feature of the city of Sheboygan and has served as a mecca for both commercial fishermen and recreational anglers; the latter have enjoyed fishing for Great Lakes trout and salmon in both the river and Lake Michigan.

As far back as 1969, however, periodic tests of sediment samples suggested the presence of pollution. In 1977, the Wisconsin Department of Natural Resources detected significant amounts of PCBs in fish taken from the river and began issuing health advisories limiting fish consumption. Continued sediment testing confirmed the presence of PCBs and such heavy metals as arsenic, lead, copper, zinc, cadmium, nickel, mercury and chromium. The PCB contamination prompted the U.S. government to place 14 miles of the lower Sheboygan River and the 96-acre harbor on the Superfund list in 1985.

Officials identified at least three companies whose operations might have contributed to the PCB contamination. In 1986, one of those firms, Tecumseh Products Company, signed a consent order with EPA and DNR, agreeing to cooperate actively in the cleanup. The Diecast Division of Tecumseh is a small engine manufacturer situated on the bank of the Sheboygan River in the community of Sheboygan Falls, a small town a few miles upriver from the harbor. The company at one time used PCBs in hydraulic fluids, and its proximity to the river meant that periodic flooding probably washed PCBs into the river.

Tecumseh hired a firm to investigate the extent of PCB contamination and ultimately located three PCB "hot spots" in the upper part of the river, where concentrations in the sediments ranged as high as 4,500 parts per million. EPA has dredged these and other sites and is testing the viability of destroying the PCBs in the sediment through biodegradation in a facility built on Tecumseh property. Additionally, in 1990 EPA covered approximately 13,500 square feet of river sediments with layers of fabric and gravel, a process called "armoring."

Tecumseh continued dredging contaminated sediment in 1991 and storing the sediment in a new, 600,000-gallon sediment containment tank on its property. As of fall 1992, officials continue to monitor the water, fish and sediments for the presence of PCBs. Results of the efforts to biodegrade the PCBs are imminent. A final cleanup plan for the entire site is forthcoming in 1993.

EPA is not the only organization working to restore the river and harbor. In 1985 the Sheboygan County Water Quality Task Force was formed to coordinate local efforts to find solutions to the contamination problem. It represents commercial anglers, the Sheboygan Yacht Club, the Sheboygan Chamber of Commerce, city and county government, sporting and conservation groups, industry and agriculture.

Another player is the Wisconsin Department of Natural Resources, which is preparing its own remedial action plan for the Sheboygan watershed in concert with the International Joint Commission, an organization established by Canada and the United States to monitor Great Lakes activities.

A second Superfund site sits astride the Sheboygan River and Harbor site. Kohler Company, a large plumbing-ware firm situated in Kohler, has operated a landfill on approximately 40 acres of land on the bank of the Sheboygan River since the early 1950s. Into that landfill over the years have gone waste solvents, hydraulic oils, sludges from electroplating operations, chrome-plating operations, and paint wastes. Today, although the landfill is still in use, only non-hazardous waste is being dumped there.

Contaminated surface water runoff from the landfill was detected in 1983, and the site was placed on the National Priorities List in 1984. The Kohler Company, identified as the potentially responsible party, signed a consent order with EPA and the Wisconsin Department of Natural Resources in 1985, agreeing to determine the nature and scope of the problem.

Monitoring in the late 1980s found volatile organic compounds, semi-volatile organic compounds and inorganic chemicals in the landfill, soil, groundwater and leachate. Officials determined that the contaminants were present in levels exceeding federal and state standards for drinking water, although they concluded that this poses no immediate threat to health because most of the contaminated groundwater is flowing into the Sheboygan River, not into private wells. Still, landfill workers could be exposed to excessive levels, as might future residents if the site were later developed.

As of fall 1992, all parties concerned had agreed to a solution: They will close the landfill, place a multilayer soil cap over the site and collect and treat leachate from a perimeter drain. A feasibility study is underway to explore options for cleaning up the groundwater.



Media Coverage. Sheboygan and Sheboygan Falls each has its own newspaper, albeit of different sizes. The Sheboygan Press, an afternoon daily with a circulation of 27,070, is the newspaper of record in Sheboygan, a community of more than 49,600 residents. The Sheboygan Falls News is a weekly that circulates 2,104 copies to residents of Sheboygan Falls.

What were the dominant frames in the newspaper coverage and how did they change over time? From 1985 to the present, coverage of the Sheboygan River and Harbor site focused on two main frames. One was "how to clean up the contaminated river." The other was "restoration of commercial and recreational fishing." Some frames, such as "who caused the contamination," received only glancing attention early in the coverage while others, such as the health risk frame, were missing entirely.

While the National Presto case study offered a kind of linear march of story frames and the Better Brite coverage seemed to cycle from one frame to another and then back again, the pattern of coverage for the Sheboygan sites offers a more steady state picture. The two frames -- clean-up efforts and restoration of fishing -- remained major components of the Sheboygan Press coverage throughout the seven years for which stories were available. The weekly Sheboygan Falls News does not follow this pattern -- in fact, it hardly attends to the Superfund sites at all -- and will be discussed in a later section.

We found a smaller number of major themes in the Sheboygan Press coverage than in coverage of daily newspapers in the other two case studies. One reason is that, although we attended to coverage for an eight-year period in this case study, awareness of the contamination of river and harbor sediments preceded that period by a number of years. Periodic dredging of the harbor for commercial boat traffic during the 1960s and early 1970s had produced evidence of contamination, and both the newspaper

and community likely had focused on the extent and nature of contamination long before the site was added to the Superfund list. Thus, by 1985, reporters had moved on to what for all three case studies is the longest-lived frame: cleanup.

Another possible reason for the brevity of the frame list in this case study is that one popular frame -- "who caused the contamination" -- was quickly dispatched, at least for the river and harbor site. While in most Superfund sites the responsible party is either long-gone or reluctant to participate, in this case Tecumseh, a local business, quickly stepped forward to accept responsibility and to play a major role in the cleanup. Missing from the coverage, thus, were the many stories following the legal wrangling that sometimes takes place as EPA and local officials try to force the responsible parties to own up to their deeds. This theme was very evident in the Better Brite coverage, for example.

Finally, we argue that the major frames adopted by the Sheboygan Press are limited to those that reflect the largely economic context within which the contamination issue was given meaning by the community. When contamination was identified in the 1970s, several factors worked to reconstruct that information as an economic -- not a health -- problem. Among the factors:

- o Sheboygan Harbor is classified by the Wisconsin Department of Transportation as a diversified cargo port but must be dredged periodically to remain navigable. The presence of contaminated sediments halted dredging in the 1980s.

- o Sheboygan Harbor has periodic runs of Great Lake trout and salmon, making sport fishing a nearly year-round enterprise. In fact, says former Sheboygan Press outdoor reporter Kurt Mueller, Sheboygan has long considered itself "the capital of big-lake sport fishing." The state typically has stocked coho and chinook salmon and rainbow trout in the fall and spring within Sheboygan Harbor. But stocking ceased with the discovery of PCB-laden sediments.
- o The area is also a lively commercial fishery. Offshore waters of Lake Michigan provide a spawning area for whitefish, and the Sheboygan Harbor provides a nursery for these fish. Commercial fishing for both whitefish and perch takes place just outside the harbor.
- o The Sheboygan community has begun constructing a marina in part of the harbor. Efforts in 1986 to dredge the area were rebuffed because the sediments might be contaminated. More recently, the city was able to persuade authorities that the part of the harbor at issue was not seriously contaminated, and work got under way.

The heavy emphasis on waterways as economic factors is expressed in a particularly interesting way by the Sheboygan Press. That newspaper maintains a full-time outdoor reporter -- not an environmental reporter -- who is responsible for such environmental topics as Superfund sites. The difference between an outdoor and an environmental reporter can sometimes be subtle, but most journalists would agree that the outdoor writer focuses more on uses of the environment -- recreational outdoor activities such as hunting, fishing, boating, for example -- than on describing and understanding the environment and its problems. An outdoor reporter, we contend, buys more readily into the argument that nature is at its most valuable when it is being used by humans. Thus, such a journalist will be

more appealing to economic power structures because he or she is more likely to define environmental issues in economic terms.

The goodness of fit between the outdoor writer and the Sheboygan community was illustrated at one point when the Press' longtime outdoor reporter, Kurt Mueller, resigned. According to the current outdoor reporter, Barry Ginter, the Press initially considered getting rid of the beat. But members of the numerous outdoor and conservation organizations in the area protested, and the beat was retained.

How did level of hazard fare as a story frame? Not well. Hazards to health barely make an appearance in the newspaper stories we examined. This is particularly surprising because, although the PCB contamination has not posed a risk to drinking water, it does make the local fish inedible. Wisconsin's fishing advisories warn anglers to avoid eating most of the fish that live in the Sheboygan River downstream from the Tecumseh plant. In fact, the list of inedible fish from this waterway longer than similar lists for any other body of water in Wisconsin. As environmental engineer Kim Bro of the Wisconsin Division of Health describes it, the advisories for the Sheboygan River area say "don't eat any of the resident species, even the little ones."

It is possible that media stories attended to the issue of health hazards earlier in the life of the river and harbor saga. Former Press reporter Kurt Mueller recalled that his early stories indeed noted that a risk to health was present; he remembers hearing and using phrases such as "PCBs as suspected carcinogens" and "PCBs, thought to cause cancer." But both he and current reporter Barry Ginter now define the health risk theme as "old news."

Mueller argued that later stories do not have the space to rehash information that has already been presented. He also worried that readers would no longer care about the health dimension of the issue at some point.

Ginter, who himself enjoys catching and eating fish from local waters, said he and his editor assume that most readers are already aware of the health risks. He admitted that he talks to few general readers but noted that the charter captains with whom he deals seem "highly knowledgeable" about the risks.

Another reason for the absence of a health risk frame in newspaper coverage during the late 1980s may be that sources did not emphasize it. The other two case studies have shown that stories are often driven by events and that such stories adopt the emphases of the events they cover. In the case of the Sheboygan River and Harbor site, although EPA and other entities staged public meetings at intervals, they did not emphasize health risks at those meetings. Division of Health official Kim Bro noted that state health officials have attended all these meetings in Sheboygan since 1989 but did not push health risk information. Officials assumed, said Bro, that residents had been wrestling for so many years with the knowledge of PCB contamination in the river that they likely were already well informed about the risks.

Although health risks did not often materialize in the newspaper stories during the eight-year span we studied, each newspaper did manage to publish one startling health story...and not the same one at that. The Sheboygan Falls News ran a press release from Sen. Robert Kasten in 1984 in which Kasten pointed to a published study indicating that infants of mothers who ate PCB-contaminated fish from Lake Michigan had lower birth weight, smaller head circumference and abnormal physical responses. Kas-

ten used the information as a springboard to report that he was leading an initiative in congress" to introduce a bill that would help coordinate efforts among various governmental bodies to manage the Great Lakes.

The Sheboygan Press, on the other hand, weighed in with an Associated Press story in 1991 in which researchers suggested the possibility of a link between a cluster of Lou Gehrig's Disease cases in Manitowoc County and eating PCB-laden fish from Lake Michigan. Three of the six sufferers reported eating fresh fish from the lake at least three times a week.

Both stories were relatively brief and contained few details about how the studies were done. Further, neither newspaper appears to have followed up on its story by seeking conflicting or corroborating information.

What was the nature of the relationships between journalists and sources? As in the other two case studies, they seemed generally uncritical.

Did newspaper resources make a difference in extent of coverage? Yes. As in the Better Brite case study, the two newspapers here vary dramatically in the resources they can bring to bear on topics such as a Superfund site. The Sheboygan Press, while relatively small for a daily newspaper, still fielded a full-time specialty reporter who covered the Superfund sites for years. Both the former and the current outdoor reporter followed the issues systematically and were occasionally given space for longer stories. A careful reading of Sheboygan Press stories over the years would yield a great deal of information about the disposition of the Superfund sites, as well as detailed stories about efforts to begin restocking the river with sport fish.

The Sheboygan Falls News, on the other hand, has a staff of one. Her typical day involves seeking news at the police department and at city hall, taking numerous phone calls from residents with items for the next issue and then spending hours doing typesetting and pasteup. In-depth coverage of any topic is out, says editor/reporter/layout person Sandra Kimball.

And given her choice of many possible stories, the Superfund sites do not rank high on her list. For one thing, she says, "I'm not an environmental reporter." For another, she feels that Sheboygan Falls residents are not interested in the sites. She recalls getting phone calls from readers upset about other issues, such as the town's recent need to create several temporary one-way streets to accommodate the repair of a bridge. But no one calls about PCBs in the Sheboygan River.

She is right when she indicates that the News pays little attention to the Superfund sites. The newspaper contains remarkably few stories on the topic despite the presence, within the city limits, of the company taking primary responsibility for contaminating the river with PCBs. Kimball writes when she gets press releases or other types of information from Tecumseh or the EPA. But she makes no effort to follow the story or even to see for herself what is going on. For example, Tecumseh and EPA built a facility on company property to experiment with biological degradation of PCBs. Kimball says she has never visited it, although it is within walking distance of the newspaper office.

Did the nature of the communities influence newspaper coverage?  
Again, yes. But while Sheboygan and Sheboygan Falls differ rather dramatically in size, they both seem structurally homogeneous. And that level of homogeneity meant that the newspaper in each community was constrained to operate within certain supportive themes.

Sandra Kimball of The Sheboygan Falls News, for example, defined the mission of her newspaper as concentrating on local but supportive news. Residents "want their kids' pictures" in the newspaper, she said. They appreciate an emphasis on feature stories, not on critical reporting. News is what someone brings to the newspaper office and asks to have placed in the next issue, not something dug out of officials' garbage cans late at night. Such a newspaper finds ignoring Superfund sites not only an easy task but a legitimate one.

While the Sheboygan Press did not ignore the two Superfund sites in its coverage area -- on the contrary, it has covered them quite systematically -- it, too, is constrained by the social structure of the community. In this case, that structure promotes making sense of things such as environmental contamination as economic issues. A focus on how these problems influence the economic wellbeing of the community allows detailed discussion of PCB-contaminated fish, for example, but primarily as a factor having a negative impact on the sport fishing industry rather than as a health risk.

#### CONCLUSION AND DISCUSSION

This study of media coverage of three Superfund sites has yielded what to us seem provocative findings. We discuss some of the general patterns of findings here, although we caution the reader once again to be aware that we base these conclusions on a sample of three sites.

When we began these case studies, we had a rather stereotypical notion of what we would encounter. We expected to find outraged communities whose newspapers maintained that sense of outrage by focussing heavily on the health hazards posed by the Superfund sites. Those patterns emerged, for example, in Krinsky and Plough's analysis of media coverage of, and



public reaction to, a Superfund site in Massachusetts (Krimsky and Plough, 1988). However, we found nothing of the kind. In all three cases, communities seemed concerned but not overly worried about the sites and the risks they posed. Newspaper coverage reflected the chain of events that takes place in the course of most Superfund site designations and cleanups but located those events within a meaning framework that encouraged readers to interpret them and the major actors -- EPA, Wisconsin Department of Natural Resources, Wisconsin Division of Health -- as responsible and rational. Most remarkably, discussion of health hazards was so minimal as to constitute an almost trivial aspect of media coverage.

In fact, the single most important message that came out of these three case studies for us was that, for the mass media, Superfund sites are not risk stories. They are not primarily -- or even substantively -- stories about risks to health. Rather, they are sagas about solving community problems. In our case studies, those sagas were constituted in newspaper text as either political or economic tales.

The dearth of risk information that we found in these case studies is consonant with a number of earlier studies, which reported that media stories about risky situations usually devote little space to a discussion of the risk itself (see, for example, Sandman, Sachsman, Greenberg and Gochfeld, 1987; Singer and Endreny, 1987). What makes this analysis a bit different is that (1) we are able to track the ebb and flow of the risk frame over the course of years for the same issue, and (2) we are interested not only in noting the absence of a health risk focus in these Superfund stories but also in explaining why that dimension is so rare.

Some critics would argue that the other-than-risk frameworks we found do not constitute changes in meaning at all, that Superfund sites have always been overwhelmingly political rather than health entities. But given that the sites are established at least in part because they constitute health risks, we still think it is important to question why media coverage of at least the three sites we studied so routinely ignored the health risk dimensions. Here are a number of possible explanations:

- o Superfund sites remain "news" for years, probably decades. For journalists, this lengthy period looms as a featureless plain pockmarked by intermittent events such as public hearings or press releases. Such an amorphous landscape is problematic for an occupation that concentrates on representing reality as something concrete that happened "today" or will happen "tomorrow." As they work to negotiate that landscape, newspapers and their reporters lose sight of the big picture. Instead, they concentrate on accurately representing the cross-section of reality that a single event such as a hearing offers up. And because the bulk of the life of a Superfund site deals with the resolution of the problem, so does the bulk of media coverage.
- o Exacerbating the difficulties of covering issues that take years to be resolved are assumptions that reporters make about their readers. Journalists tacitly assume that their readers have a feel of the evolution of an issue and that those readers, thus, will bridle if they are fed "old news." "Old news" is information that was defined as new and worthy of note earlier in the lifespan of an issue. Once articulated, such information is then assumed to be part of the knowledge that readers will bring to bear on later stories. Thus, a discussion of the health risks posed by a Superfund site

may be an important component of early stories but may be omitted purposely from later ones. The health risk frame, then, may be a feature of Superfund coverage only at the earliest stages of the issue.

Another audience assumption that works against the inclusion of detail in stories is: In areas where more than one newspaper is available, readers will use those multiple publications in a complementary fashion. This assumption allows a newspaper to avoid taking responsibility for being comprehensive by asserting that residents can glean a detailed accounting from another -- usually larger -- outlet. The editor of the weekly newspaper in Sheboygan Falls, for example, argued that most of her readers subscribe to the larger daily in Sheboygan just a few miles away and would encounter substantial coverage there of the Sheboygan River and Harbor Superfund site.

- o Risk to health recurs as a frame across the lifespan of a Superfund site only to the extent that sources keep tugging it onto the media agenda. Given the event orientation of media, it appears that if sources highlight risks to health in a formal setting, such as a public hearing, the media will readily adopt that frame of reference in their stories. Abundant research on risk and other types of stories has demonstrated journalists' reliance on official sources for their interpretive frames (for one of the better discussions of this phenomenon, see Fishman, 1980). But officials are not the only ones who can achieve this. Perhaps the most influential creators of hazard frames are residents. In one of our case studies -- Better Brite -- one worried resident was able to keep health risks a dominant element of coverage by continuing to

Speak out on the topic over the years. We wonder if citizen efforts might not be powerful predictors of media attention to the health dimension of Superfund sites.

- o Within these three case studies, availability of newspaper resources had no influence on maintenance of a health risk frame. Newspapers with the resources to field specialty reporters, for example, did produce a greater quantity of stories, and those stories, in our judgment, afforded readers a far more detailed understanding of the events that took place within the Superfund site at hand. But the specialty reporters we encountered in these case studies were no more likely to feature the health aspects of their sites than were other kinds of reporters.
- o Finally, the nature of the community in which a newspaper was embedded seemed to play a crucial role in defining the nature of Superfund coverage. In some cases -- as with the two weekly newspapers we examined -- community structure may have encouraged reporters and editors to downplay coverage of the Superfund sites altogether. Tichenor, Donohue and Olien argue that newspapers in homogeneous communities are part of the community power base and thus work hard to frame problematic happenings as nonthreatening. One way to do that is to ignore the issue entirely. In lieu of that, a newspaper may frame the issue as a problem that is being solved handily by officials, in other words, as something that is, not a problem at all! In either case, level of hazard would get very short shrift.

Communities also may play a role in establishing the framework within which an issue is discussed. That was very much the case for two of the case studies, National Presto and the Sheboygan River and Harbor site. The lengthy and, apparently, contentious relationship among the communities of Eau Claire, Chippewa Falls and the township of Hallie worked to give meaning to the Superfund site as a territorial issue. The health hazards represented at the site became relevant to townspeople and journalists only to the extent that they lent credence to motives ascribed to the actions of any single community as it "poached" on another.

Similarly, the Sheboygan River and Harbor site quickly evolved into an economic issue for residents of Sheboygan and for the Sheboygan Press. Within that context, health hazards were transformed. PCBs in fish became problems for the health of the sport fishing industry rather than potential hazards to the health of individuals. Heavy metals embedded in sediments in the Sheboygan Harbor became roadblocks to dredging rather than health threats.

If these factors are indeed at work, they suggest that some attributes of media coverage of Superfund sites vary little across media organizations but that others are quite situational. The production-driven behaviors of journalists, for example, may mandate the kind of universal reliance on events and the relatively uncritical acceptance of "official" sources that we saw in these three case studies. On the other hand, the role of communities in establishing the framework within which an issue is given meaning suggests that one must be wary of assuming that one frame fits all.

**CHAPTER FOUR:**

**TOXICS RELEASE INVENTORY (TRI) CASE STUDY**

## Introduction

In this chapter we again use content analysis to examine the influence that an environmental group's press release, and some related public information activity, had on newspaper publication of the results of a report the group prepared on toxic releases from industries in the Midwest. Our analysis indicates how the press release, in combination with the structure of the community, affected news coverage of this topic among 373 midwestern daily newspapers.

## Toxics Release Inventory

Because of a 1986 federal law, the Superfund Amendments and Reauthorization Act (SARA), the public has access to information about the release, storage, and possible health effects of toxic chemicals in their communities. Part of this law requires manufacturers in a variety of industries to report annually the amount of hazardous chemicals they have released into the environment. The U.S. Environmental Protection Agency (EPA) gathers this information and makes it publicly available through a national computerized database termed the "Toxics Release Inventory" (TRI).

SARA and TRI provide a base of data from which news organizations can generate stories about local and national toxic releases, their health risks, and the extent to which local and national industries are complying with the law (Environmental Health Center, 1989).

Inform, Inc., Information Campaign

In July 1991, a non-profit environmental research group called "Inform, Inc.," based in New York, issued a report entitled Toxic Clusters: Patterns of Pollution in the Midwest, based on its examination of TRI data (Inform Inc., 1991).

The Toxic Clusters report indicated that industries in seven midwestern states -- Illinois, Indiana, Iowa, Michigan, Minnesota, Ohio, and Wisconsin -- are responsible for a disproportionately large amount of the toxic wastes released in the United States. The report provided separate lists that named the "Top 20" counties in the Midwest that are high in specific forms of pollution (e.g., toxics released into the air, into surface water), as well as a list of the 20 counties that generate the most toxic waste overall. Each of the seven states is represented on at least one list. The report also provided detail about the types of industries and contaminants involved, as well as TRI data for each county in the seven-state region.

To announce its findings and inaugurate publication of Toxic Clusters, Inform, Inc., conducted news conferences in late July in communities located in three of the "Top 20" counties (Whiting, Indiana; Detroit, Michigan; and Green Bay, Wisconsin). Copies of the report were available at the news conferences, as well as from the group's national headquarters.

About a week prior to the news conferences, Inform, Inc., sent press kits to a couple of hundred television, radio, and newspaper reporters in the seven-state region, and to the various state press (wire) service bureaus, which then transmitted stories about the report to their client news media. Included in the press kit were a "media advisory" announcing the nearest news conference, a news release, and various fact sheets. The



three-page news release summarized some of the broader findings of the Toxic Clusters report but was not localized beyond mention of the top-five polluting counties [4.1] and contained no health risk information. Fact sheets included background information about the Toxics Release Inventory and some known health effects of a handful of the more commonly released toxic chemicals in the Midwest. Fact sheets also gave more detailed information about toxic releases in three states (Indiana, Michigan, and Wisconsin, where press conferences were being held) and provided some information about releases in the most polluted counties. Copies of the full Toxic Clusters report were not included in the press kits.

The public information activities surrounding the Toxic Clusters report offer an opportunity to observe the relationship of the press kit to media coverage of the report's findings.

Given the central social and economic roles that industries can play in some communities, especially smaller ones, we also wanted to examine the influences of community structural variables, in particular community pluralism and reliance on manufacturing, on press coverage of these toxic releases from industry.

### Information Subsidies

Our first research question is: What is the relationship of sending newspapers the Inform, Inc., press kit to newspaper coverage of the Toxic Clusters report?

Gandy (1982) suggests that news releases, press kits, news conferences, and similar forms of public relations activities can be seen as

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[4.1] Counties that are highest in the Midwest in overall toxic releases are: Lake County (Gary and Hammond), Indiana; Wayne County (Detroit), Michigan; Cook County (Chicago), Illinois; Allen County (Lima), Ohio; and St. Clair County (East St. Louis), Illinois.

"information subsidies" that citizen groups, businesses, government agencies, and other news sources make to news media and other communication channels. These subsidies, he claims, are "an attempt to produce influence over the actions of others by controlling their access to and use of information relevant to those actions" [p. 61]. Gandy proposes that the price of obtaining information affects its use. Those who "subsidize" the news media by disseminating to them information that they can use quickly and inexpensively increase the likelihood that the media will use that information. In contrast, it is much more expensive for the news media to assign staff members to "dig" for news. "The notion of information subsidies," Gandy says, "is based on a recognition that the price of information may be reduced selectively by interested parties in order to increase the consumption of preferred information" [p. 30]. As Turk (1986) describes:

"These public relations information subsidies may not be the preferred source of information for journalists, who perhaps wish they could personally gather the facts and figures of the environment they report rather than relying upon others.... But information subsidies from public relations practitioners are used by journalists. And when there's consumption of an organization's message by the media -- when the organization's information is made a part of the media's agenda and content -- the organization stands at least a chance of influencing the public agenda" [pps. 4-5]. [4.2]

Various studies (e.g., Hale, 1978; Martin and Singletary, 1981; Sachsman, 1976; Theus, 1988) have demonstrated that news releases and other forms of public information activities affect news media content,

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[4.2] Under various conditions, the news media might influence what audiences perceive as important issues by stressing those issues in news content (McCombs and Shaw, 1972; Rogers and Dearing, 1987). This "agenda-setting" influence could affect public opinion by defining for the public those attributes of a problem that are most important to consider (Iyengar and Kinder, 1987). Information subsidies and other influences that affect the ways the media stress or downplay information might indirectly affect audience agendas by affecting media agendas.

including the kinds of information that are stressed by the news media (Turk, 1986). However, news releases will not be very successful unless the reporter who receives the news release determines the information to be "newsworthy" -- in particular, to have a local angle, to be timely, and to have impact on the public (Turk, 1986).

Inform, Inc., may have established "timeliness" through the news conferences it held. (Toxic Clusters had a 1991 publication date, even though the TRI data were from 1988, the latest available when Inform, Inc., prepared the report.) Although the press kit provided only limited localization of the toxic release information, the separately available Toxic Clusters report contained data reporters could use to find a local angle for any county in the seven states. One of the more direct impacts of this report on the public would be via information about health risks from the toxic releases. There was little of this information in the press kit. We will examine whether news organizations that received the press kit would be more likely to publish a story about Toxic Clusters than news organizations that did not receive the kit, and whether receipt of the press kit had any direct or indirect relationship to aspects of story and headline content.

### Community Structure

Our second research question is: What is the relationship of community structure (pluralism and reliance on manufacturing) to news coverage of the Toxic Clusters report?

Based on the conflict/consensus theory, we expect that news media in more pluralistic communities would be more likely than papers in less pluralistic communities to contain information about the Toxic Clusters report, because this information could, at minimum, raise local conflict.

We would also expect to find much the same patterns in regard to risk tent and localization of the toxic release information. We would also expect that news media in less pluralistic communities would be more sensitive than papers in more pluralistic communities to reliance of their community on manufacturing.

Information such as that in the Toxic Clusters report, which concerns potentially deleterious environmental and health effects of manufacturing, could raise conflict in local communities reliant on manufacturing, even if the story is not localized. Localizing the information and signalling a health risk could make the story even more sensitive.

We expect to find that reliance on manufacturing produces only small differences in newspaper publication of the Inform, Inc., report in more pluralistic communities. If anything, the "conflict" nature of the press in more pluralistic communities might increase the likelihood of running the story as reliance on manufacturing increases. However, we expect that, in less pluralistic communities, the greater the reliance on manufacturing, the less likely the news media would publish information about the report.

#### METHOD

A professional clipping service searched the 373 daily newspapers in the seven-state region that subscribe to the major U.S. press service, the Associated Press, which transmitted stories about the Inform, Inc., report. [4.3] All of these papers would therefore have received usable wire

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[4.3] Other stories based on the Toxics Release Inventory have been published by various news media over time, and further research could examine whether broader patterns of TRI coverage are affected by the community structure and information subsidies variables we examine in this case study. Our analysis of necessity is restricted to examining news articles relating to the Toxic Clusters report.

stories about the report, and indeed AP stories about Toxic Clusters were published by newspapers in each of the seven states. (United Press International and the Chicago Tribune Service also transmitted their versions of the story.) Papers were monitored from July 23, 1991, when Inform, Inc., sent out its press kits, to August 31, 1991, about a month after the organization released the Toxic Clusters report and held three news conferences.

### Dependent Variables

To define press coverage of the Toxic Clusters report, our dependent measures include whether or not newspapers published information about the report, as well as four variables based on analysis of published items: whether the paper's own staff generated story content, whether the story contained localized information about toxic releases, whether the headline was similarly localized, and whether the headline contained risk information. We included headlines because headlines offer newspapers the opportunity to stress, in a handful of words, what they deem to be the most important aspect of the story for readers. A lot of local news judgment is therefore reflected in headlines, even those written for wire stories. Forces that affect news judgment would affect headlines as well.

Just about all of the published items based on the Toxic Clusters report contained some reference to health risks, if only because of use of the term "toxic" from the title of the report. The number of items that asserted the presence of a risk of contracting a specific malady because of exposure to the toxins was too small to analyze statistically.

**Publication.** Because only a small portion of newspapers publish more than one item about the Toxic Clusters report, we defined publication of the story in terms of whether or not the paper ran at least one item based on Toxic Clusters. Eighty-nine (24%) of the 373 papers ran at least one item during the period of analysis, mostly between July 30 and August 1.

Because the unit of analysis in this study is the individual daily newspaper, measurement of the content variables that follow (staff generation of content, item localization, headline localization, and use of a risk headline) is based on the total coverage these papers gave Toxic Clusters during the period of observation. Intercoder reliability was better than .85 for each of the four content variables. [4.4] Note that, in contrast to our general content analysis, the staff generation variable is used as a dependent variable in part of this analysis. In the few cases where the paper published more than one item, a given content variable coded as present if at least one item had the characteristic (e.g., if at least one item was localized, the newspaper's coverage was coded as localized).

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[4.4] Because only two coders were available to determine intercoder reliability for this portion of the study, we used proportion of agreement measures and Scott's (1955) pi rather than the Krippendorff (1980) procedure to estimate reliability in the TRI case study. Scott's pi, like Krippendorff's procedure, adjusts the results to account for the influence of chance agreement between the two coders. To estimate reliability, 15 items were sampled from the set of stories and the content coded by two independent observers, whose ratings for each of the content variables were then compared story-by-story to ascertain the proportion of agreement between the two coders. For example, the two coders agreed on the "item localization" code for 14 of the 15 items (93% agreement, Scott's pi = .86), and were in total agreement (Scott's pi = 1.0) for the other three content variables (staff generation, headline localization, and use of a risk headline). Interested readers should refer to original articles by Krippendorff (1980) and Scott (1955) for an explanation of the formulas used. Citations are included in the References section of this report.

**Staff Generation.** Based on bylines and other indicators of story origins [4.5], we coded news stories and editorials originating from the newspaper staff, as compared to those labeled as wire service stories, as "staff-generated." No newspaper simply printed the Inform, Inc., news release verbatim.

**Localization of Item.** Coverage was considered localized if the text contained information about the status (e.g., amount or ranking) of toxic releases for the newspaper's own county or metropolitan area.

**Localization of Headline.** A headline was considered localized if it applied the report's findings to the paper's own county or metropolitan area.

**Risk Headline.** A headline was considered a risk headline [4.6] if the main headline contained a term such as "toxic" that strongly signalled a possible threat to health. For example, the headlines "Ohio rife with toxicity; small towns suffer, too" and "Lake County called toxic center" were considered to be risk headlines, whereas "Lake County, Ind., tops list of waste producers" was not.

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[4.5] For example, items that were labeled as "staff correspondence" were coded as staff generated. So were editorial page editorials, unless they were attributed to non-staffers (e.g., from a wire service or syndicate). A story that the newspaper labeled as a mix of staff and wire copy was coded as staff generated, because it involved some local reportorial information gathering.

[4.6] In our coding system, we needed to discern headlines that were relatively strong and unambiguous in regard to the existence of a health threat. Our risk headline coding in this case study is consistent with the coding system for risk headlines used in the general content analysis in Chapter Two in that we used a list of "risk signals" that included the word "toxic" but not "waste" or "pollution." (See APPENDIX C, Section CC.) The latter terms appeared in nearly all of the headlines in this case study that did not use "toxic" or some other risk signal, but do not seem to stress a threat to human health as strongly as do the risk signal terms.

### Independent Variables

The following measures were included in this analysis so we could determine their apparent influence on press coverage of the Toxic Clusters report:

**Sent Press Kit.** Based on information we received from Inform, Inc., we coded whether or not each daily newspaper was sent a press kit regarding the Toxic Clusters report. Kits were sent to 31 (8%) of the daily newspapers in our analysis.

**Community Pluralism.** To represent community pluralism, we ranked each of the 363 communities in this study in terms of its 1990 population and in terms of the proportion of its school children (in grades kindergarten through 12) who are minorities or in private schools, based on data we gathered from each state's department of education. SMSA data were used instead of community data if the paper was in the central city of an SMSA. We then summed these two rankings to give each community a pluralism score. The scale has an acceptable level of reliability (Cronbach's alpha) of .77. [4.7]

**Community Reliance on Manufacturing.** The importance of this community variable to our assessment of media coverage of Toxic Clusters means that we will be using community reliance on manufacturing as an independent variable for part of the analysis. As we did for the general content analysis in Chapter Two, we divided the number of people employed

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[4.7] Based on the previous research into community pluralism, Dunwoody and Rossow (1989) indexed pluralism via the two measures used in this analysis and by additional measures of community businesses per capita, number of religious denominations, and number of voluntary social service organizations. Their latter two measures were unavailable to us across all the 363 communities in this analysis. Data on community businesses per capita were gathered across all communities in the study, but this variable was not included in the pluralism index because it lowered scale reliability (Cronbach's alpha) to an unacceptable .34.



by manufacturers in each newspaper's county (Census of Manufactures, 1990) by the population of the county. (SMSA data were used instead of county data whenever newspapers were in central cities of SMSAs.)

### Control Variables (Covariates)

Along with community reliance on manufacturing and staff generation of content, the other essential community and media organizational control variables identified in Chapter One were included in this analysis. We added two other variables -- the "Top 20" status of the newspaper's county and the newspaper's proximity to one of the Inform, Inc., news conferences -- to help us assess the effects of the Inform, Inc., information campaign.

**"Top 20" County.** While not as sensitive a measure of pollution as is the Toxics Release Inventory (TRI) data from which it is derived, the Inform, Inc., "Top 20" County designation was used to identify newspapers in those areas with the highest levels of toxic releases in any category of releases, including overall. Because the "Top 20" designation was used by Inform, Inc., as a central part of its public information campaign about Toxic Clusters, it seemed the most appropriate means of controlling for a community being in the toxic spotlight.

**Proximity to News Conferences.** Because Inform, Inc., was not able to supply us with information about which news media attended its three news conferences, we had to measure access to these conferences indirectly by giving the highest score (two) if the paper was in the same SMSA as a news conference, a score of one to those papers in counties adjacent to these SMSAs, and a zero to those papers farther away. These conferences represent sources of further information about the Toxic Clusters report, and an additional information subsidy.

**Toxic Releases per Industry.** Toxics Release Inventory (TRI) data for each newspaper's county or SMSA (from Toxic Clusters) were divided by number of industrial facilities in that county or SMSA (Census of Manufactures, 1990).

**Ownership of Newspaper.** We used the same scale as we did in the general content analysis in Chapter Two.

**Reportorial News Staff Size.** We used the Editor & Publisher (1991a) International Yearbook to get data for two estimates of the size of the editorial staff for each newspaper. One estimate is based on a formula derived from newspaper circulation (Polich, 1974). The other is based on the number of editorial staffers voluntarily listed for each paper. We combined the two measures into a single index with an acceptable level of reliability (Cronbach's alpha = .86).

**Environmental or Science Reporter on Staff.** We measured this variable according to whether or not each newspaper in the study had included an environmental or science reporter in its staff listing in the Editor & Publisher (1991a) International Yearbook. [4.8]

APPENDIX C shows the coding system that we used to examine press coverage of the Toxic Clusters report.

## RESULTS

### Press Kit

Our first research question concerned the relationship of sending newspapers the Inform, Inc., press kit to newspaper coverage of the Toxic Clusters report.

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[4.8] While the listing is an imperfect measure, it seems validated by the fact that it correlates well (beta=.42, not shown in tables) with editorial staff size, because specialization usually depends on staffing.

**Publication and Staff Generation.** When we adjust the results of our analysis to account for the effects of our control variables, we find in Table 4.1 that the press kit did appear to have some moderate effect on whether or not a newspaper published an item about Toxic Clusters ( $\epsilon = .43 - .27 = .16$ ). Papers that received the press kit were somewhat more likely than the rest of the papers to run a story. A rather intriguing result is that the press kit also appears to have encouraged newspapers that ran items to assign their own staff members to the stories or editorials, instead of simply running one of the press service stories about the Toxic Clusters report ( $\epsilon = .51 - .24 = .27$ ). This suggests that the most significant impact of the press kit on news coverage might have been to mobilize local staff. [4.9]

**Item localization.** Localization of the stories appears to have been affected only indirectly by the press kits, that is, only through their apparent effects on local staff mobilization. The relationship of the press kit to story localization is insignificant ( $\epsilon = .35 - .32 = .03$ ), whereas staff generation of the items bears a very strong relationship ( $\beta = .81$ ) to localization.

In general, it appears that sending the press kit had some effect on whether the paper published information about the Toxic Clusters report, but its primary role seems to have been to encourage or facilitate the papers to devote staff resources to the story. Once staff members were assigned, they were more likely than the wire services to localize the story, even if the paper were not in a "Top 20" county. This kind of re-portorial enterprise probably included use of the fact sheets in the press

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[4.9] The group of papers that ran an item about Toxic Clusters and was sent a press kit is relatively small in number (15), but precision is enhanced by the fact that the data are from a census and therefore there is no sampling error to consider.

Table 4.1  
Effects of INFORM, Inc., Press Kit  
on Use, Staff Generation, and Content of Newspaper Items  
Based on Toxic Clusters Report

	Adjusted Percentages				
<u>Dependent Variable:</u>	<u>Sent</u>	<u>INFORM</u>		<u>Significant Covariates:</u>	<u>Beta</u>
	<u>Press</u>	<u>Kit</u>			
	<u>No</u>	<u>Yes</u>			
Ran Story	27%	43%			
n=	342	31	373		
Staff Generated	24%	51%		Proximity to News Conference	.29
				Toxic Releases per Industry	.24
				Top 20 County	.20
				Staff Size	.20
Localized Item	35%	32%		Staff Generated	.81
Localized Headline	20%	12%		Localized Item	.60
				Staff Size	
				Interaction:	
				Pluralism x Mfg. Reliance	-.20
Risk Headline	65%	34%		Mfg. Reliance	-.25
n=	74	15	89		

SPSS Manova was used to adjust percentages by the following control variables (covariates): community pluralism; community reliance on manufacturing; interaction of these two preceding variables; toxic releases per industry; "Top 20" status of county in toxic releases; newspaper ownership; size of newspaper reportorial staff; presence of environmental or science reporter on newspaper staff; proximity of newspaper to Toxic Clusters news conference. Staff generation of content was included as a covariate for analysis of the dependent variables of Localized Item, Localized Headline, and Risk Headline. Localized Item was also included as a covariate in analysis of the dependent variable of Localized Headline. Pluralism and Manufacturing Reliance were each dichotomized and contrast-coded, and the interaction term derived by multiplication.

kit, procuring a copy of the Toxic Clusters report, or phoning Inform, Inc., for more information. (An Inform, Inc., spokesperson estimates that they received, after the news conferences, about 50-75 phone calls from reporters who wanted more information.) [4.10]

**Headlines.** We would expect that receipt of the press kit, which affected the content of stories only indirectly through staff generation of content, would affect headline content even less directly, because the copy editors who usually write the headlines take their cues primarily from the stories they receive from the wire or from staff reporters.

This pattern is evident in localization of headlines in regard to industrial releases. The relationship of the press kit to this localization is insignificant ( $\epsilon = .20 - .12 = .08$ ), but the relationship of story localization to headline localization is, as might be expected, quite strong ( $\beta = .60$ ). Thus, in the chain of events, receipt of the press kit appears to encourage staff generation of copy, which produces greater likelihood of localization of the story content regarding toxic releases, which then increases the probability that the copy editor will localize the headline.

While nearly all of the published items included some implication of health risks, 56% of the papers used a risk headline. Paradoxically, newspapers who received the press kit were less likely to include risk in the headline than were papers who did not ( $\epsilon = .65 - .34 = .31$ ). The reason for this relationship is not clear.

**Covariate relationships.** As Table 4.1 shows, those newspapers that ran the story were more likely to assign their own staff members to cover

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[4.10] The wire service stories generally reflected the fact that the Toxic Clusters report and related press kit concentrated on toxic releases and provided little information about specific risks. The wire service stories, however, were not simply copies of the Inform, Inc., news release.

the story, instead of relying on wire service accounts, if they had larger staffs ( $\beta = .20$ ), if the paper was located closer to one of the three news conferences ( $\beta = .29$ ), if the paper was in a "Top 20" county ( $\beta = .20$ ), or if individual local industries were, on the average, somewhat "dirtier," that is, higher in toxic releases ( $\beta = .24$ ). Larger staff size and proximity to news conferences, of course, make it easier for a paper to devote personnel to cover the story. Papers in more "toxic" communities (those with the highest levels of toxic releases and those with dirtier individual industries) might have determined that the Toxic Clusters story was prominent enough, or sensitive enough, to warrant entrusting it to local staffers. The presence of an environmental or science reporter on the news staff, however, does not appear to have affected coverage of this story. It is not clear why papers with larger staff sizes were less likely to localize the headline regarding releases ( $\beta = -.27$ ).

Newspaper ownership structure bore no significant relationship to coverage of the Toxic Clusters story when used as a covariate in this analysis. The relationships of community structural variables to newspaper composition of headlines will be explored in the next section.

### Structural Variables

Our second research question concerned the relationship of community pluralism and reliance on manufacturing to coverage of the Toxic Clusters report.

**Publication.** The analysis of covariates in Table 4.1 had indicated no significant linear relationship between either community structural variable and a newspaper's likelihood of publishing the Toxic Clusters story, and no significant interaction. To examine the second research

question further, we broke both structural variables into levels of "high," "medium," and "low" for the analysis in Table 4.2.

The relationship between pluralism and publication is not significant, as shown in the bottom row of percentages in Table 4.2 ( $\epsilon = .27 - .22 = .05$ ). Our other expectations were not confirmed either. Instead, we found a curvilinear relationship between community reliance on manufacturing and publishing information about the report, as shown in the column of percentages on the right side of Table 4.2 ( $\epsilon = .32 - .18 = .14$ ). This pattern, in which publication is most likely in communities with medium reliance on manufacturing, is found to some extent in all three levels of pluralism, but most strongly ( $\epsilon = .39 - .19 = .20$ ) among high pluralism communities.

While the reason for this curvilinear relationship is not clear, it is likely that other forces are interacting. Relevance of the Inform, Inc., report to the community would generally increase with the community's reliance on manufacturing. The report, however, would also be more locally sensitive as manufacturing reliance increases, especially in difficult economic times. Perhaps papers in communities with medium levels of reliance on manufacturing find the story locally relevant but not overly sensitive, and therefore were the most likely to publish the story.

**Headlines.** Table 4.1 showed no relationship of either community structural variable to localization or staff generation of the item. The relationship of pluralism and reliance on manufacturing to headline content is, however, a bit more dynamic. Risk headlines were somewhat less likely to be found atop the Toxic Clusters story in communities more reliant on manufacturing ( $\beta = -.25$  in Table 4.1), which may indicate reluctance to spotlight a linkage between contamination from manufacturers and health risks in communities more reliant on manufacturing. Headline

Table 4.2  
Proportion of Daily Newspapers  
Publishing At Least One Story on Toxic Clusters Report  
by Community Pluralism and Reliance on Manufacturing

Adjusted Percentages  
[Except for Overall Total]

		<u>Community Pluralism:</u>			
		<u>Low</u>	<u>Medium</u>	<u>High</u>	<u>Total</u>
Manufacturing Reliance:	Low	16%	20%	19%	18%
	n=	[40]	[42]	[47]	[129]
	Medium	28%	28%	39%	32%
	n=	[36]	[37]	[46]	[119]
	High	22%	20%	24%	22%
	n=	[48]	[46]	[31]	[125]
Total		22%	22%	27%	24%
n=		[124]	[125]	[124]	[373]

SPSS Manova was used to adjust percentages by the following control variables (covariates): toxic releases per industry; "Top 20" status of county in toxic releases; newspaper ownership; size of newspaper reportorial staff; presence of environmental or science reporter on newspaper staff; proximity of newspaper to Toxic Clusters news conference; whether newspaper had been sent a Toxic Clusters press kit.



localization of toxic release information is affected by an interaction between pluralism and manufacturing reliance (beta =  $-.20$  in Table 4.1). Examination of cell data (not shown) indicates that headline localization is the most likely in pluralistic communities that are less reliant on manufacturing. Twenty percent of the 24 papers in that group ran a risk headline, while the incidence in the other three pluralism x manufacturing reliance groups is at or near zero (adjusted by the covariates). This result may also suggest that the press' function to raise controversy in more pluralistic areas may be tempered by some economic sensitivities.

## CONCLUSION

### Information Subsidies

The information subsidies model proposes that the "rule of least effort" guides the newsgathering behavior of journalists (Fishman, 1980; Gandy, 1982). The results of this study provide general, albeit somewhat mixed, support for that assertion. Specifically:

- o Consistent with the information subsidies model, newspapers that were sent the press kit were more likely to publish an item about the Toxic Clusters report. None of the published items, however, were verbatim versions of the Inform, Inc., news release.
- o While most papers that ran the Toxic Clusters story indeed were content to use a wire service version, which by and large reflected the Inform, Inc., angle to the story, some papers went beyond this easily available material to devote staff resources to covering the story. [4.11] By making additional information about the report avail-

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[4.11] The positive relationship of staff size to the assignment of a local reporter to the story underscores the idea that the cost of gathering information dictates much of news coverage, as the information subsidies model proposes.

able to various newspapers, primarily through the use of press kits and news conferences, Inform, Inc., appears to have encouraged some of those papers to assign staffers to the story by making relevant information easier for them to gather.

- o Newspapers in communities that appear to have problems with high overall levels of toxic industrial pollution, or that have "dirtier" local industries, felt more compelled to have one of their own staffers cover the Toxic Clusters story.

Therefore, local conditions might have prompted editors to entrust the story to one of their own reporters. Yet, to a large extent, the "rule of least effort" still seemed to apply. Reporters motivated to get this "local angle" could rely on the Inform, Inc., materials to provide, somewhat easily, a listing of the "Top 20" toxic counties and TRI data for each county in the Midwest. (Public information efforts might have been more successful, in terms of story publication, if press kits had contained fact sheets with specific TRI data for local counties, enabling reporters to localize the story even more easily.) However, information about health risks from the local toxic releases -- which represents the direct impact of these pollutants on the public, and which is often difficult for reporters to gather and interpret for audiences -- was generally absent from the stories. [4.12] Risk information was also relatively absent from the Toxic Clusters report.

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[4.12] Singer and Endreny (1993) found that media commonly report on "the serious outcomes associated with a particular instance of a hazard" (p. 101), such as a person dying from toxic shock, but rarely provide more general or comprehensive information about hazards and associated risks, such as long-term consequences from exposure to a hazard or risk-benefit tradeoffs.

### Community Structure

Although community pluralism and reliance on manufacturing did not have the kinds of relationships to press coverage of Toxic Clusters that we originally anticipated, the results of the study still demonstrate the need to take community structural variables into account when planning public information efforts concerned with risk from environmental contaminants. Between the two community structural variables, reliance on manufacturing seemed to play a stronger role in affecting news coverage than did pluralism. However, because this analysis involved only communities with daily newspapers, the smallest communities with weekly newspapers were not included. This truncated the variance in the community pluralism measure and probably weakened its ability to show an effect.

Based on the "conflict/consensus" model of Tichenor, Donohue and Olien (1980), we expected to find that community reliance on manufacturing would affect coverage of the Toxic Clusters report primarily in less pluralistic communities, where press deference to local economic and political powers would likely be higher than in more pluralistic communities. The patterns of coverage we found, however, were somewhat more complex, yet still reflective of interworkings of the structural variables. Specifically:

- o Reliance of communities on manufacturing, sometimes combined with community pluralism, affected treatment of the Toxic Clusters story in those decision domains that most filter and frame the news for local readers -- whether to run the story at all and what to stress in the headline.

- o Publication of the story was most likely in communities with medium levels of reliance on manufacturing, regardless of level of pluralism. The result suggests that the story might have been deemed not relevant in communities with low reliance on manufacturing and too sensitive in communities very reliant on manufacturing, even if the community was high in pluralism. Sensitivity to local economic conditions may, therefore, dampen the press' "watchdog" function even in more pluralistic communities, especially when economic times are tough, and affect news media use of subsidized information relevant to potentially contentious local problems.
- o Local sensitivity to the report may also be indicated by differences in headline treatments, because spotlighting of health risks from industrial releases in headlines varied inversely with community reliance on manufacturing, regardless of community pluralism. Localization of the headline in regard to industrial releases was most likely in those high-pluralism communities that were less reliant on manufacturing.

These patterns suggest that information about health risks and related problems stemming from local contaminators in a community is very sensitive information and is treated carefully by local media. In particular, daily newspaper use of information subsidies seems to be affected by a cost-benefit tradeoff that takes into account the ease of gathering the information as well as anticipation of the effects of that information on the social and economic workings of the community of which the paper is a part.

Public information efforts need to be aware of, and work with, these community-based forces and sensitivities. In particular, it appears that an effective information program would make it as easy as possible for local editors and reporters to customize information about local environmental contamination for their communities.

## **CHAPTER FIVE:**

### **GENERAL CONCLUSIONS AND RECOMMENDATIONS**

## Introduction

Because people tend to rely on mass media for information about health risks, we believed it important to investigate forces that affect the way local media portray health risks stemming from industries and other sources of environmental contamination in the local community. Residents of smaller communities and of communities highly reliant on manufacturing may not get, through their local mass media, much information about health risks from local sources of pollution.

## Research Summary

Our case studies and content analyses were devoted to exploring the effects of community structure, in particular community pluralism, on the ways local newspapers portray health risks from environmental contaminants. Based on research into community pluralism and the mass media by Tichenor, Donohue and Olien (1980), we expected that news media in more pluralistic (usually larger) communities would be more likely to publish information related to conflict among segments of the community than would news media in less pluralistic (usually smaller) communities, and would be more likely to publish sensitive information that could raise conflict in the community. News media in less pluralistic communities usually serve to build local consensus rather than reporting on or fostering local conflict over sensitive issues.

Health risk information, we proposed, could serve as a catalyst for local conflict if it effectively "links" environmental contamination from a local polluter (e.g., an industry) with hazards to the health of members of the local community. Therefore, this kind of risk information would be sensitive, particularly in less pluralistic communities, and would be controlled in the interest of controlling local conflict.

Based on the research on community structure and our conception how risk information might be differentially configured in different communities, our general research question was:

What is the effect of community structure, in particular community pluralism, on press coverage of health risks from local sources of environmental contamination?

To answer our research question, we conducted a three-part, multi-method research project: (1) a quantitative general content analysis of framing and of presentation of risk information about local environmental contamination in 16 communities (19 newspapers) primarily in Wisconsin; (2) three qualitative case studies that explore the historical development of media framing and presentation of risk information from three Superfund sites in Wisconsin; and (3) a quantitative content analysis of the ways that daily newspapers in the Midwest covered a report by an environmental interest group about toxic pollution in seven midwest states, based on data the group gathered from the Toxics Release Inventory (TRI).

Although our results at times were mixed, in general we found that community structure does affect risk communication. In particular, media in less pluralistic communities tend to downplay information about health risks to members of the community from local contaminators. Our content analysis of 19 newspapers found that papers in less pluralistic communities tend not to associate environmental contamination from local sources with human health risks, and tend to play up the idea that contamination problems are being solved. Much the same patterns were generally found in our Superfund case studies, even though local health risks from these sites were, somewhat surprisingly, not a significant component of media coverage of these Superfund sites. Similarly, not much risk information was included in press stories about the Toxic Clusters report on toxic



leases from industry in the Midwest, which itself did not include much health risk information. However, headlines signalling health risks from industrial releases were less prevalent in communities more reliant on manufacturing, and the headlines were more likely to stress local toxic releases if community pluralism was high and reliance on manufacturing was low. Papers in communities highly reliant on manufacturing seemed reluctant to publish information about contamination from local manufacturers, at least as that contamination was portrayed in the Toxic Clusters report and the attendant information campaign. Newspapers in communities with "dirtier" local industries, or with high levels of TRI releases, were more likely than other newspapers to entrust coverage of Toxic Clusters to their own reporters.

These findings prompt a number of recommendations for risk communicators.

### Recommendations

Designers of risk communication programs should, in effect, consider the information needs of two "audiences": (1) selected target groups (or segmented publics) and (2) the media organizations serving those publics. In neither case does one message fit all. While research is needed to investigate the ways that people in large versus small communities use risk information from the mass media, our study does provide some insights into the community forces that affect the ways mass media filter and frame risk information for local audiences. Recommendations about how to present information to reporters in varying community circumstances still require confirming research.

**Community Structure.** Our results indicate that the distribution of power in a community influences the way the newspapers there (and perhaps other types of media) select and use information about risks from industries and other potential sources of environmental contamination. We suggest that:

- o Public information efforts in regard to Superfund sites and other sources of toxic contamination should take community structure, in particular community pluralism, into account: As Grunig and Hunt (1984) observe, public relations strategies that may be effective in metropolitan areas may be counter-productive in small, rural communities, and vice-versa.
- o As a practical matter, the size of a community's population is a reasonably good surrogate for community pluralism. The larger the community, the more diverse it is and the more decentralized are power groups.
- o Community structure can have an impact on the interpretive strategy that a newspaper uses to explain a risk and on the types of information about the risk that the paper includes in news accounts:
  - >> In small communities, newspapers will be interested in maintaining an image of the community as a good place where problems are readily resolved and where people get along with one another. Thus, they will usually welcome information couched in terms of how local environmental problems are being solved. They will probably be less welcoming of information that spotlights the notion that members of the community are at risk from local sources of contamination. It will be relatively hard to place "this is a local

problem" information in such outlets.

- >> In larger communities, newspapers will be more open to interpreting an environmental hazard as a local problem and to presenting information about risks from local sources of contamination.
  - >> Even in larger communities, however, local media might find some contamination issues to be sensitive. For example, newspapers seem to be particularly careful about how they present information about problems of toxicity from industry if the community is highly reliant on local manufacturing.
- o The bottom line is that you might need to "tell the story" differently depending on the kind of community, and perhaps work with local news media in different ways:
- >> You may need to embed the same information (e.g., explanation of a risk, of the cleanup process) in different contexts when working with the news media in different communities, placing the information in the context of a problem if the news medium is in a larger community or stressing what is being done to solve the problem if the news medium is in a smaller community. (See excerpts in Chapter Two for examples of "problem frames" and "solution frames.")
  - >> News media in smaller communities appear to be willing to publish broader, feature-type "generic" stories about health risks from environmental contaminants as long as they are not directly linked to local sources of pollution. (See excerpts in Chapter Two for examples of "generic" stories.) For news media in smaller communities, you might include in a news release or related materials (e.g., fact sheets) a phone number or address that members of the public could contact to get further information about what to do

about the risks. News media in less pluralistic areas have been found to carry quite a bit of this kind of useful detail (Ross and Dunwoody, 1991), although editors may eliminate this kind of "mobilizing information" from stories if they consider the story to be controversial (Lemert, 1984).

- >> News media in larger communities seem to be interested in generic stories about solutions to contamination problems that are being tried elsewhere.
- >> When contamination issues are locally sensitive, news media will probably prefer that their own staff members cover and craft as much of the story as possible. Papers in larger communities tend to have larger staffs to devote to such customized reporting. Under these circumstances, your best strategy might be to make it as easy as possible for local reporters to write their own stories. For example, The TRI (Toxic Clusters) case study showed that a comprehensive press kit sent to local media prompted newspapers to mobilize local staff resources to cover the story. Neither the wire services nor any of the newspapers in the study published the accompanying news release verbatim. As Turk (1986) notes, agencies should also be prepared to respond as "reactive information-givers" to specific information requests from journalists, since this kind of public information activity is more effective than agency-initiated handouts (e.g., news releases and fact sheets) in getting agency information published.

**Other Factors for Consideration.** Our research also discovered some other patterns of news coverage of risk information useful for risk communication program planners to know:

- o In long-playing stories about contamination, risk information seems to be regarded by journalists as more appropriate at some times than at others. Our Superfund case studies found that information about risks from local sites, while never very prevalent in the media, was more a part of public dialogue concerning the sites in the earlier stages of publicity. Risk information remained part of media coverage for a longer time only in De Pere, where a local citizen kept raising her concerns about health effects on her family of the nearby site. Otherwise, media coverage of the sites rapidly evolved to media coverage of solving political or economic problems -- areas of coverage that fit well into common journalistic newsgathering routines and require little special expertise. A similar pattern was found by Olien et al. (1984) in their study of a power line siting controversy in Minnesota.
- o The inclusion of risk information in the mass media appears to be highly "source-driven"; that is, reporters seem to be much more likely to include risk information if it is given to them by a source than to take the initiative to seek risk information from a source to fill out a story or to update it for audiences. Based on the Toxic Clusters case study, it appears that if sources do not provide much risk information, neither, for the most part, will the media.

**Methods.** Our study generated some methodological recommendations well:

- o Research that evaluates the effectiveness of messages about risk (or any other topic) must include controls for covariates--for other variables that might confuse the picture. Laboratory experiments typically control for these other variables through the design of the study. In field studies outside the laboratory, however, researchers must rule out the influence of these other variables so the results of the study will not be misleading.
- o There is considerable value in approaching a communication problem by using a variety of research methods. Our content analyses and Superfund case studies yielded different types of data. The content analyses found general patterns while the case studies provided details. The case studies, with support from the broader content analyses, became illustrations of general patterns and not just idiosyncratic instances. Together, these two methods provided a rich picture of the effects of community pluralism on risk communication.

### **Further Research**

More research is needed into community structure and related forces that affect press coverage of risk from environmental contaminants, into the effectiveness of the pluralism-related public information strategies suggested above, and into the kinds of cognitive processing of risk information that audience members do, especially when the media present them with stories about generic risks. Under what circumstances do people apply this risk information to their own circumstances?

## Conclusion

Our research has demonstrated the effects of community pluralism on mass mediated risk coverage, and the need for public information programs concerning environmental risk to tailor their messages to the roles of media in communities that vary in pluralism. Since most of the mass media in the United States are small city dailies or broadcast stations, or community weekly newspapers, public information specialists will need to deal commonly with the kinds of community constraints on mass communication about local health risks that we explored in these studies.

**APPENDIX A:**

**GENERAL CONTENT ANALYSIS CODING GUIDE**



## CONTENT ANALYSIS CODING GUIDE:

### GENERAL CONTENT ANALYSIS

#### Selection Protocol

##### Criteria:

1) Does the item mention the presence or absence of a link between a contaminant and human health anywhere in the item (e.g., concerns a health hazard from an environmental contaminant, a link between an environmental contaminant and human health)?

If YES, include. If NO, go to step 2.

2) Does the item contain common journalistic terms for contaminants (e.g., air pollution, water pollution, solid waste) or contaminant-related maladies, as indicated on the list of "buzzwords" (SECTION AA)?

If YES, go to step 3. If NO, go to step 4.

3) Does the item concern aspects of the contaminant or malady that could reasonably be associated with a risk or hazard to human health (e.g., the substance or the disease)?

If YES, include. If NO, go to step 4.

4) Does the item mention a chemical, organic, or other contaminant?

If YES, go to step 5. If NO, go to step 6.

5) Does the item concern aspects of the contaminant that could reasonably be associated with a risk or hazard to human health (e.g., the substance)?

If YES, include. If NO, go to step 6.

6) Does the item mention a malady that can be reliably attributed to exposure to a contaminant (SECTION AB)?

If YES, go to step 7. If NO, exclude item.

7) Does the item concern aspects of the malady that could reasonably be associated with a risk or hazard from a contaminant (e.g., the disease)?

If YES, include item. If NO, exclude item.

## Initial Coding at Selection:

The initial selection code (Cols. 1-16) is put on the back of each item as well as on the back of its headline. Heads are separated from items in further coding, as noted.

Column(s)	Variable	Scheme
1	Month	1-9 (Jan.-Sept.) month of issue of paper
2-3	Day	01-31 day of month of issue of paper
4-5	Paper	Initials for coding newspaper:  AR Algoma Record-Herald BN Brookfield News CS Chicago Sun-Times CT Chicago Tribune CF Chippewa Falls Herald-Telegram DE Delavan Enterprise DP De Pere Journal EC Eau Claire Leader-Telegram FH Franklin Hub MF Menomonee Falls News MJ Milwaukee Journal (incl. Waukesha ed.)* MS Milwaukee Sentinel MC Monroe County Democrat OE Oconomowoc Enterprise OO Oregon Observer SP Sheboygan Press SH Sparta Herald SC Stoughton Courier-Hub WF Waukesha Freeman
6-7	Item No.	01-99 serial number for item in that specific issue of a given newspaper on a given day. Code in order of appearance, starting with top of front page and working through pages and sections in order.
8	Location	1-3 coded as follows:  1 front page 2 inside (e.g., sectional) front page 3 inside page

- 9           Type of Item: 1-4   Code the type of item selected:  
                   1 Story (news or feature)  
                   2 Editorial  
                   3 Personal column  
                   4 Other (cartoon, etc.)
- 10           Wire           W, S, M, C, or O coded as follows:
- W   If story is entirely from a single  
      press service, syndicate, etc.
- S   If story is entirely staff-written.  
      ("Staff" is any writer not associated  
      with a press service, syndicate, etc.)
- M   If story is a mix of press service  
      stories, but without staff-generated  
      information.
- C   If story is a combination of staff and  
      wire material.
- O   If story is something other than the  
      above (e.g., column contributed by  
      local government agency).
- 11-14       Wire ID       (0000) 0001-9999 Specific ID number for sto-  
                              ries coded as W (Wire) stories. The same story  
                              in different publications (i.e., a "mul-  
                              tiple") would have this same ID number,  
                              even though the rest of the code up to this  
                              point would be different. Two (or more)  
                              Wire stories would be considered "multiples"  
                              of one another if:
- 1) The stories come from the same wire  
     service;
  - 2) Most of the paragraphs are the same;  
     and
  - 3) The lead is the same or similar.
- If wire stories are "multiples," then the  
      rest of the content coding scheme is applied  
      only to the longest item. No other coding,  
      outside of the coding scheme to this point,  
      the placement of number "1" in column 55,  
      the Wire Paragraph Count, and the headline  
      coding, is applied to the shorter versions  
      of Wire Multiples.
- If item is NOT a Wire story, put four zeroes  
      (0000) in cols. 11-14.

15-16      Wire Paragraph Count      (00) 01-99 Coded as follows:  
   This code applies to Wire Multiples ONLY.  
   If the item is NOT a Wire Multiple, code  
   these columns as 00. For Wire Multiples,  
   count the number of paragraphs in the  
   item, and enter that number in columns  
   15-16.

- \* Note: In coding Milwaukee Journal, select stories from Waukesha section for a given date at the same time as selecting stories from the rest of the Journal for that date. Treat first page of Waukesha edition as a secondary front page (location code 1), but with item numbers that follow the regular front page of the Journal.

**FRAMING:** Judging from the first three paragraphs of the item, any, all or none of the following frames may appear in the beginning of the item. [NOTE: An exception is made for Anecdotal Frames. If an Anecdotal Frame is present, consider the Frame to include the anecdote up to the point that the item indicates the relevance of the anecdote. Include that paragraph as well.]

**17 Anecdotal Frame:**

Is an Anecdotal Frame present?

- 0 No.
- 1 Yes.

**18 Problem Frame:**

Is a Problem Frame present?

- 0 No.
- 1 Yes.

**19 Solution Frame:**

Is a Solution Frame present?

- 0 No.
- 1 Yes.

**20 Scientific Frame:**

Is a Scientific Frame present?

- 0 No.
- 1 Yes.

**21 Governmental/Political Frame:**

Is a Governmental/Political Frame present?

- 0 No.
- 1 Yes.

**22 Conflict Frame:**

Is a Conflict Frame present?

- 0 No.
- 1 Yes.

**23 Consensus Frame:**

Is a Consensus Frame present?

- 0 No.
- 1 Yes.

**24 Risk (Linkage) Frame:**

Does the frame include a linkage between a contaminant and a malady?

- 0 No.
- 1 Yes: Linkage asserted (regardless of risk level).
- 2 Yes: Linkage proposed (proposal, questionable, reduced risk, conditional).
- 3 Yes: Absence of linkage proposed.
- 4 Yes: Absence of linkage asserted.

**NOTE:** If various risk linkages occur in the frame, code the one involving The Contaminant, if present. Otherwise, code the first risk linkage presented.

**25 Risk Signal:**

Is a Risk Signal present in the Frame?

[See SECTION AE for list of Risk Signals. If a Risk Frame is present, code this variable as 9.]

- 0 No.
- 1 Yes.
- 9 Risk Frame is present.

**26 Event Frame:**

Is an Event Frame present?

- 0 Not an event-based story.
- 1 Event based story without event frame.
- 2 Event based story with event frame.

**27 Event Timing:**

What is the timing of the event?

- 0 Not an event-based story.
- 1 Past event: planned.
- 2 Past event: unplanned (e.g., accident).
- 3 Future event.

2S-30 THE Contaminant:

Each item chosen for analysis will be coded according to whether a contaminant is mentioned in the story, and if so, which contaminant is mentioned. This contaminant will be referred to as THE contaminant in subsequent analysis of the item. If more than one contaminant is mentioned in a story, the contaminant referred to most in the story will be coded. If the story deals with a mix of contaminants about equally, or if a common journalistic buzzword for contaminants is used with no further specification of contaminants, the code will specify the contaminant as being general or a mix, as noted in the code scheme. Generally, we will code for the most specific contaminant that the story is primarily about.

000 No contaminant included in item

100 Common journalistic general term for contamination or contaminant (e.g., item just uses phrase such as "toxic substance" or "hazardous waste," and is not more specific).

110 "Air Pollution" or synonyms (e.g., "smog")

120 "Water Pollution" or synonyms

130 "Ground/Soil" Pollution or synonyms

199 Mix of general terms for contamination and/or contaminants, not further specifiable

200 Toxic or hazardous chemical, type not further specified (e.g., item just uses phrase such as "pesticide" or "weed killer", etc.)

NOTE: See SECTION AF for instructions on coding chemicals in the 200 series, using the EPA Title III List of Lists. SECTION AF also has coding for some specific chemicals.

210 Toxic Chemical (313) in Title III List of Lists.

220 Hazardous Substance (CERCLA) in Title III List of Lists.

230 Extremely Hazardous Substance (EHS) from Title III List of Lists.

240 Other specific hazardous chemicals

241 Dioxins

242 Petroleum

299 Non-specifiable mix of specific chemicals

Continued...

- 300 Radiation, type not further specified
  - 310 Extra Low Frequency electromagnetic radiation (ELF or EMF)  
    (e.g., from power lines, electrical appliances, etc.)
  - 315 Other electrical radiation.
  - 320 Microwave radiation
  - 330 Ultraviolet radiation ("solar," ultraviolet light sources)
  - 340 X-Rays
  - 350 "Nuclear" radiation (Gamma rays), radioactivity
    - 351 Radium
    - 352 Radon
  - 360 Other specific radiation
  - 399 Non-specifiable mix of specific radiation sources
- 400 Infectious organism (e.g., virus, bacteria, parasite)
- 500 Hazardous particulate matter (e.g., soot, ash)
- 600 Other contaminants
  - 610 Carbon dioxide
  - 620 Carbon monoxide
  - 630 Ozone (ground level air pollution)
  - 699 Non-specifiable mix of specific contaminants of "other"  
    variety, or across types (e.g., infectious and chemical).



**31-32 Contaminant Special Code:**

Is The Contaminant any of the following?

- 00 No contaminant included in item.
- 10 Familiar but hazardous substance (see SECTION AD).
- 20 Drug or medicine (including impurities).  
[Also see SECTION AD.]
- 30 Related to contagious disease that "goes around."
- 40 Tobacco smoke (general).
  - 41 As inhaled by smoker and by others.
  - 42 As inhaled by smoker.
  - 43 As inhaled by others (second-hand smoke).
- 99 None of the above.

**33 Location of The Contaminant:**

What is the location of The Contaminant?

[See SECTION AC for Location code. If Omnipresent but localized, code as local, etc. Determine location from actual location of contaminant, not necessarily based on dateline.]

- 0 No contaminant included in item.
- 1 Local.
- 2 Regional.
- 3 Distant.
- 8 Omnipresent (e.g., many unspecified places, "everywhere").
- 9 Cannot be determined from item (e.g., anywhere).

**34 Release:**

Does the item mention Release of The Contaminant into the environment?

[NOTE: "Release" refers to the intentional or accidental release, or suspected release, of The Contaminant into the environment, in either an unsanctioned way (e.g., a spill, illegal dumping, seepage) or through more sanctioned ways such as controlled releases of pollutants from industries.]

- 0 No.
- 1 Yes: Release is contained within buildings or a complex.
- 2 Yes: Release is NOT contained within buildings or a complex.
- 3 Yes: Extent of Release cannot be determined from item.

35 Presence of Malady:

Does the item mention a Malady?

- 0 No.
- 1 Yes.

NOTE: Common journalistic terms for maladies (e.g., "illness," "sickness") will be included if the item specifies that the illness is due to exposure to a contaminant.

36 Linkage:

Is a Linkage made between a Malady and The Contaminant?

- 0 No.
- 1 Yes, in the frame.
- 2 Yes, elsewhere in the item.

37 Contaminant/"Protaminant"

Does the Linkage posit positive effects or negative effects on human health?

- 0 No linkage between substance and health effects.
- 1 Substance has negative effects on human health.
- 2 Substance has positive effects on human health.

---

PRESENTATION is the manner of depiction of risk information about the linkage between The Contaminant and a Malady that can occur anywhere in the item. Any, all or none of the following forms of presentation may occur in a given item.

If there is no linkage between The Contaminant and a Malady, code all Presentation variables (Cols. 38-44) as zero (0). See Col. 36 for Linkage code.

38 Verbal-Frequency Presentation:

Is Verbal-Frequency Presentation present?

- 0 No.
- 1 Yes, in the frame.
- 2 Yes, elsewhere in the item.

39 Verbal-Probabilistic Presentation:

Is Verbal-Probabilistic Presentation present?

- 0 No.
- 1 Yes, in the frame.
- 2 Yes, elsewhere in the item.

40 Frequency of Incidence Presentation:

Is Frequency of Incidence Presentation present?

- 0 No.
- 1 Yes, in the frame.
- 2 Yes, elsewhere in the item.

41 Probability of Incidence Presentation:

Is Probability of Incidence Presentation present?

- 0 No.
- 1 Yes, in the frame.
- 2 Yes, elsewhere in the item.

42 Anecdotal Presentation:

Is Anecdotal Presentation present?

- 0 No.
- 1 Yes, in the frame.
- 2 Yes, elsewhere in the item.

43 Anecdotal Support:

Is the anecdote used as an illustration of risk information  
(verbal-frequency, verbal-probabilistic, frequency of incidence, or probability of incidence) anywhere in the item?

- 0 Anecdotal presentation not present.
- 1 No.
- 2 Yes.

44 Prescriptive Presentation:

Is Prescriptive Presentation present?

- 0 No.
  - 1 Yes, in the frame.
  - 2 Yes, elsewhere in the item.
-

45 Familiar but Hazardous Substance:

Does story mention release or disposal of a familiar but hazardous substance?

[See SECTION AD for listing of these substances.]

- 0 No.
- 1 Yes.

46 Location of The Contaminator

What is the location of The Contaminator?

[If more than one contaminator is mentioned, code the one referred to most as The Contaminator. If equal mention, consider the one closest in Location. See SECTION AC for Location code. If Contaminator is Omnipresent but localized, code as local, etc.]

- 0 No contaminator explicitly included in item.
- 1 Local.
- 2 Regional.
- 3 Distant.
- 8 Omnipresent (e.g., many unspecified places, "everywhere").
- 9 Cannot be determined from item (e.g., anywhere).

47 Type of Contaminator:

Which of the following best describes The Contaminator?

- 0 No contaminator included in item.
- 1 Business or industry.
- 2 Governmental agency.
- 3 Private individual(s).
- 4 Other.
- 8 Unspecifiable mix of sources.
- 9 Cannot be determined from item.

48 Superfund Inclusion:

Is Superfund included in the item?

[Include mention of Superfund itself, as well as of known Superfund sites, even if item does not label the site as a Superfund site. In the latter case, see EPA National Priorities List (NPL), August 1990, for national listing. If site is NPL site, but item does not relate it to Superfund, code as 2, as indicated below.]

- 0 No.
- 1 Yes.
- 2 Yes due to mention of NPL site but Superfund not cited.

49-50 Superfund Site Code:

[If more than one site is mentioned, code for the site referred to most in the item. If equal reference, code for closest site. Include known sites (See SECTION AG and EPA National Priorities List) even if item does not relate site to Superfund.]

00 Item does not mention Superfund site(s).

01-79 Specific codes for some Wisconsin and Chicago-Area Superfund Sites. See SECTION AG.

80 Love Canal, NY

81 Times Beach, MO

82 Valley of the Drums, KY

90 Other site, local.

91 Other site, regional.

92 Other site, distant.

93 Other site, distant: Wisconsin.

94 Other site, distant: Illinois, Indiana.

[See SECTION AC for Location Code.]

98 Omnipresent or unspecifiable mix of sites.

99 Other site, location not determinable from item.

51-54 Blank.

55 Put the number 1 in Column 55 for each item coded.

HEADLINE CODINGCol.

1-16 Enter the initial selection code.

NOTE: Definitions for the following will be the same as for contaminants and item risk frame, signal, and presentation.

17 Contaminant:

Is a contaminant mentioned in the headline?

- 0 No.
- 1 Yes.

[Note: Contaminant would be any contaminant term, including more general terms such as pollution, waste, etc.]

18 Headline Risk (Linkage) Frame:

Does the headline include a linkage between a contaminant and a malady?

- 0 No.
- 1 Yes: Linkage asserted (regardless of risk level).
- 2 Yes: Linkage proposed (proposal, questionable, reduced risk, conditional).
- 3 Yes: Absence of link proposed.
- 4 Yes: Absence of link asserted.

19 Risk Signal in Headline:

Is a Risk Signal present in the headline?

[See SECTION AE for list of Risk Signal words. If the headline has a risk frame, code Risk Signal as 9.]

- 0 No.
- 1 Yes.
- 9 Headline has risk frame.

20 Anecdotal Presentation:

Is Anecdotal Presentation present in the headline?

- 0 No.
- 1 Yes.

21 Prescriptive Presentation:

Is Prescriptive Presentation present in the headline?

- 0 No.
- 1 Yes.

22 Verbal-Frequency Presentation:

Is Verbal-Frequency Presentation present in the headline?

- 0 No.
- 1 Yes.

23 Verbal-Probabilistic Presentation:

Is Verbal-Probabilistic Presentation present in the headline?

- 0 No.
- 1 Yes.

24 Frequency of Incidence Presentation:

Is Frequency of Incidence Presentation present in the headline?

- 0 No.
- 1 Yes.

25 Probability of Incidence Presentation

Is Probability of Incidence Presentation present in the headline?

- 0 No.
- 1 Yes.

55 Put the number 2 in Column 55 for all headlines coded.

### OTHER PRIMARY VARIABLES

The following primary independent and control variables are added to the command file, for each community:

#### o Community Pluralism

The Community Pluralism measure for each community is the summed ranking of the community across the following variables ( $\alpha=.74$ ):

- o Population;
- o Proportion of minority and private school students to total primary and secondary school enrollment;
- o Number of religious denominations;
- o Number of voluntary social service organizations.

A fifth measure of Pluralism (number of businesses per capita) was dropped from the index due to poor intercorrelation with the other measures.

#### o Toxic Release per Industry

Toxic Release per Industry is calculated by dividing the number of reported toxic releases for the community (based on the Toxics Release Inventory) by the number of manufacturers in the community (based on the Index of Manufactures).

#### o Manufacturing Employment

Manufacturing employment is the proportion of the population employed in manufacturing.

The following primary independent and control variables are added to the command file, for each newspaper:

#### o Newspaper Ownership

- 1 Local, independently owned.
  - 2 Owned by chain, local headquarters.
  - 3 Owned by chain, headquarters in same state.
  - 4 Owned by chain, headquarters out-of-state.
- [Note: "Chain" refers to ownership of two or more newspapers in different communities.]

#### o News Staff Size

The News Staff Size is the number of fulltime reporters and non-management editors employed by the newspaper. This variable is correlated highly with Pluralism ( $r=.75$ ).



o Science/Environmental Beat

Newspapers were coded according to whether the paper has at least one reporter assigned to cover science and/or environment on a regular basis (0=no, 1=yes). This variable is moderately correlated with Pluralism ( $r=.56$ ).

## DEFINITIONS

-C-

**Contaminants** are substances, organisms or conditions in the environment that produce secondary, unintentional positive or negative impacts on human health, excluding trauma. [Dictionary definition]: A contaminant is that which upon coming in contact with something will make it impure, unclean, or unfit for use.

Each item chosen for analysis will be coded according to whether a contaminant is mentioned in the story, and if so, which contaminant is mentioned. This contaminant will be referred to as THE contaminant in subsequent analysis of the item. If more than one contaminant is mentioned in a story, the contaminant referred to most in the story will be coded. If the story deals with a mix of contaminants about equally, or if a common journalistic buzzword for contaminants is used with no further specification of contaminants, the code will specify the contaminant as being general or a mix, as noted in the code scheme. Generally, we will code for the most specific contaminant that the story is primarily about. (Also see Rule of Inclusion.)

In coding **Locality** of The Contaminant, if The Contaminant is a mix or a buzzword, The Contaminant will be considered local if the item indicates that part of the contamination is local. If the near locality of even part of the contamination is regional, then Locality will be coded as regional.

**Contaminators** are those human or organizational parties considered responsible for, or potentially responsible for, producing the presence of The Contaminant in the environment, or conveying The Contaminant (e.g., an individual transmitting a virus to another). To be coded as including a contaminator, the item must explicitly indicate the presence of a human or organizational agent. Contaminators do not include regulators or parties who have inherited contaminated sites but have not contributed themselves to contamination. In items regarding Superfund, Contaminators include PRPs (Potentially Responsible Parties). Individuals who are contaminators through operating a business (including physicians) would be coded as business or industry in determining the "type" of contaminator.

Each item chosen for analysis will be coded according to whether a contaminator is mentioned in the story. This contaminator will be referred to as THE contaminator in subsequent analysis of the item. If more than one contaminator is mentioned in a story, the contaminator referred to most in the story will be coded. If the story deals with a group of contaminators about equally, the **Locality** of the closest contaminator will be coded in the Locality code.

-E-

**Environment** refers to that which is outside the person at risk.

**Extremely Hazardous Substances** are chemicals defined by Sections 301-304 of the Emergency Planning and Community Right-to-Know Act. Because of their acutely toxic properties, these chemicals may be of immediate concern to the community if they are released. Releases must be reported to authorities immediately, under the law. Also see Hazardous Substances, Toxic Chemicals.

-F-

**Frames** are "principles of selection, emphasis, and presentation composed of little tacit theories about what exists, what happens, and what matters" (Gitlin in Dunwoody, 1990), schemata or knowledge structures that are activated by some stimulus and then employed by the journalist throughout story construction (Dunwoody). They represent what the story is "about." In this study, these frames can include none, all, or some of the following types: **Anecdotal, Conflict, Consensus, Event, Governmental/Political, Problem, Risk, Scientific, and Solution.**

**Anecdotal Frames** are present when a specific case or cases that the writer uses as an example or examples appears in the first three paragraphs.

**Conflict Frames** are present if the first three paragraphs of the item involve description of a controversy (e.g., charges, responses to charges, disagreements). This frame is not simply a reporting of a vote or poll, or a simple statement that a conflict had occurred, but a description of the fact and the content of the disagreement.

**Consensus Frames** occur when the first three paragraphs involve complete or nearly complete agreement among various parties. This frame is not present if agreement is merely a function of a close vote, for example. Consensus frames may include some information that a conflict had proceeded the consensus, but would still be considered consensus frames if the result is consensus in the wake of the conflict.

**Event Frames** are present when information is present in the first three paragraphs that an event has occurred in the past week (or on a date labeled "recent"), or will occur in the upcoming week. To determine whether the item has an event frame, we first determine whether the item is **event based**. An item is event-based if all of the following are true:

- 1) Information is presented anywhere in the item that states that an event has occurred within the past week (or on a date that is described as "recent"), or will occur in the upcoming week;
- 2) The event is described or named explicitly (e.g., a meeting,

speech, press conference, accident, publication) anywhere in item;

3) The information in the first three paragraphs is derived from the event.

Interviews of sources set up by the journalist are not considered event-based. For example, a story that gives background on predictions of a future environmental catastrophe would not be considered an event-based story unless that story indicates that, for example, these predictions are based on comments made by scientists at a conference the day before, or that such a conference is planned to occur in a few days. Such a conference would be considered the "event," not the upcoming catastrophe. Similarly, a general story about the results of an experiment would not be considered an "event" story (even though the conducting of an experiment would otherwise be considered as an event) unless the story is based on a report of the study in, for example, a "recent" medical journal.

Also see **Planned Events and Unplanned Events**.

**Governmental/Political Frames** are present if the first three paragraphs of the item concern the behavior of governmental officials, politicians, public employees, or the governmental/political system. Representatives of governmental agencies that deal with areas such as environment, health, and science (e.g., EPA, health department) are considered both scientific and governmental sources. If they are established sources of information in the frame, that is sufficient to establish the frame as a scientific frame (q.v.) and as a governmental/political frame.

**Problem Frames** are present when information alerting readers to a problem or danger is presented in the first three paragraphs. If a problem and its solution are both presented in the frame, the coding of problem frame and/or solution frame (q.v.) is as follows:

1) If the frame presents a solution that effectively solves the problem presented in the frame, then the frame is a solution frame and not a problem frame;

2) If the frame presents a solution that does not completely solve the problem presented in the frame, or if it is uncertain whether the solution will solve the problem or be adopted (e.g., someone proposes that banning a certain chemical is the solution to eliminating its hazards), then the frame is a problem frame as well as a solution frame. In short, if there is still notice of a "problem left" even after information about the solution is presented in the frame, then the frame is a problem frame as well as a solution frame.

If the solution to one problem is presented as posing new problems (e.g., the story is about the side effects of a remedy

to a problem), the item is considered to be a problem frame and not a solution frame (q.v.).

**Risk (Linkage) Frames**, while not truly content free, are present if a linkage between a contaminant and a malady is overtly referred to, in the first three paragraphs of the item. The linkage could be asserted to various degrees, or denied to various degrees.

**Scientific Frames** are present if the first three paragraphs of the item concern the behavior of scientists or the scientific establishment. Members of the medical professions are considered to be scientists. If a scientific source is established as a source of information in the frame, that is sufficient to establish the frame as scientific. Representatives of governmental agencies that deal with areas such as environment, health, and science (e.g., EPA, health department) are considered both scientific and governmental sources. If they are established as sources of information in the frame, that is sufficient to establish the frame as a scientific frame and as a governmental/political frame (q.v.).

**Solution Frames** occur when information about how problems or dangers are being dealt with, or may be dealt with, is presented in the first three paragraphs. Preventives are considered solutions in this context. Solution frames may include information about the problem at issue, yet could be considered solution frames. If a problem and its solution are both presented in the frame, the coding of problem frame (q.v.) and/or solution frame is as follows:

- 1) If the frame presents a solution that effectively solves the problem presented in the frame, then the frame is a solution frame and not a problem frame;
- 2) If the frame presents a solution that does not completely solve the problem presented in the frame, or if it is uncertain whether the solution will solve the problem or be adopted (e.g., someone proposes that banning a certain chemical is the solution to eliminating its hazards), then the frame is a problem frame as well as a solution frame. In short, if there is still notice of a "problem left" even after information about the solution is presented in the frame, then the frame is a problem frame as well as a solution frame.

If the solution to one problem is presented as posing new problems (e.g., the story is about the side effects of a remedy to a problem), the item is considered to be a problem frame (q.v.) and not a solution frame.

-H-

**Hazardous Substances** are defined by Section 304 of the Emergency Planning and Community Right-to-Know Act, and are listed under previous Superfund hazardous waste cleanup regulations. Releases of these chemicals above certain amounts may pose an immediate hazard to the

community, and must be reported immediately to authorities under the law. Also see Extremely Hazardous Substances, Toxic Chemi-

-L-

**Linkage** refers to a connection between exposure to The Contaminant and contraction of a malady made in the item. (Also see Rule of Inclusion.)

**Locality** (or Location) refers to whether The Contaminant or The Contaminator are within the main news gathering/circulation areas of the newspaper. The Locality code has five levels to represent proximity: Local, Regional, Distant, Omnipresent (q.v.), and Indeterminate.

Contaminants and contaminators are coded according to the closest proximity to the newspaper as made explicit in the item. For example, a news item in the Sparta Herald might state that a chemical spill happened in Sparta. The spill is, technically, both Regional (since it happened in Monroe County) and Local (since it happened in Sparta). The Contaminant would be coded as Local. Had the spill happened in Monroe County, but outside of Sparta, the location of The Contaminant would be coded as Regional, based on the code system in SECTION AC. Had the item stated that a spill happened in Dane County, which is outside the "Region" for the Sparta Herald, The Contaminant location would be coded as Distant. If the item had not explicitly concerned a local, regional, or distant spill, but instead had dealt with an increase in the number of chemical spills in, for example, Wisconsin or the entire United States, The Contaminant location would be coded as Omnipresent (q.v.). In other words, an Omnipresent code leaves open the distinct possibility that such spills could be happening locally as well, even though such a location is not mentioned. If the item were to state that a spill had happened in Sparta, too, then the item would be coded as concerning a Local contaminant. If the item concerned a chemical spill but did not state its location, or stated that The Contaminant is in relatively few yet unspecified locations, then The Contaminant location would be coded as Indeterminate. In short, an "Omnipresent" code means that The Contaminant or contaminator are in many unspecified places, more or less "everywhere." An "Indeterminate" code means that The Contaminant or contaminator could be "anywhere." The former code leaves open the possibility of The Contaminant or contaminator being local as well, much more so than does the "Indeterminate" code.

Coding of location for contaminants and for contaminators must be done carefully, based on information in the item. It is quite possible, for example, for local contamination to be caused by a distant contaminator. The location codes for contaminants and for contaminators may differ in the same item. Locality codes for newspapers in this study are contained in SECTION AC.

For newspapers in the suburbs of metropolitan areas, or that are in communities outside of metropolitan areas, "Local" is considered to

be within the community corporate limits, unless the newspaper itself also considers a neighboring community as equally local for purposes of news gathering and circulation (e.g., Darien for the Delavan Enterprise, or Hales Corners for the Franklin-Hales Corners Hub). For newspapers that serve the central city of metropolitan areas "Local" is considered to be the metropolitan area, that is, the central city plus any suburban communities adjacent to the central city or to other suburban communities. (Since the Milwaukee Journal includes a Waukesha edition that is coded as part of the Journal, the city of Waukesha is included as "local.") Areas considered to be "Regional" are surrounding counties or communities that are considered also a part of the paper's main newsgathering or circulation area, based on judgments by staffers or on consultation with Audit Bureau of Circulations penetration data.

The Locality of a contaminator is determined by the present location of the contaminator. If the party responsible for pollution from, for example, a local Superfund site was once a part of the community but has now moved to a distant city, then the Locality of that contaminator is considered distant. If the party responsible is a local business now defunct, the locality would be considered local if the item states that the person responsible for the business is still local. If that cannot be determined, code the item such that the Locality is coded as undeterminable from the item. In determining the locality of the contaminator when a spill is made from a vehicle (e.g., a truck or a railroad freight car), code locality according to which of the following is closest, judging from the item: 1) the firm or individual responsible for the vehicle, if indicated; 2) the destination of the vehicle, if indicated; 3) the origin of the vehicle, if indicated. For example, if a chemical spills from a tank car spotted on a siding serving a local business, code the contaminator as local.

-M-

**Maladies**, for purposes of our study, are human diseases, disorders, or ailments that can be reliably attributed to exposure to a contaminant.

**Operationalization:** Maladies "that can be reliably attributed to exposure to an environmental contaminant" are those based on infectious organisms (Merck Index) and those reliably attributed to exposure to chemicals and other hazardous substances (La Dou, 1990).

-N-

**Non-Specifiable**, as used in the code for The Contaminant, means that none of the named mix of contaminants dominates the item enough so that it can be named as The Contaminant.

-O-

**Omnipresent** refers to a contaminant or contaminator being depicted as general in location, not to exclude it being local as well (even though this is not expressed). For example, an item might state that the air in the United States has been polluted by chemicals. If the item also contains a reference that the air locally is also polluted, then the item would be coded as local. If a regional reference, then code as regional. If the item specifically states the contaminant or contaminator are distant, then code as distant. If the item explicitly states that the contaminant or contaminator are in many different places, then code as Omnipresent. If the item indicates that a contaminant, for example, is in relatively isolated or few locations, but does not specify where the contaminant is located, then code as though the location cannot be determined from the item (9). It is quite possible for the locality code to be different for the contaminator and for the contaminant in the same item.

-P-

**Planned Events** are those events that can be planned (e.g., under the control of an information source, such as a press conference). Also see **Unplanned Events**.

**Presentation** is the manner of depiction of risk information about the linkage of the contaminant to a malady that occurs anywhere in the item. In this study, presentation can be all, none, or some of the following types: **Anecdotal**, **Prescriptive**, and the **Presence of Information in verbal-probabilistic and/or numerical form**.

**Anecdotal Presentation** occurs when the item includes a specific case or cases, used as an example or examples, of persons afflicted by a malady allegedly due to exposure to the contaminant. A related code indicates whether the anecdote is illustrative of supporting risk information in verbal-probabilistic or numerical form.

**Presence of Risk Information** takes various forms that concern the risk of contracting a malady due to exposure to The Contaminant. This information can be in verbal or numerical form, and concern frequencies or probabilities. The fourfold typology includes **Verbal-Frequency**, **Verbal-Probabilistic**, **Frequency of Incidence**, and **Probability of Incidence** presentations. Risk information includes changes or comparisons.

**Verbal Presentations of Risk Information** report in non-quantitative terms the incidence or probability of persons being afflicted by a malady due to exposure to The Contaminant.

**Verbal-Frequency Presentation of Risk Information** occurs when the item includes a non-quantitative statement about the incidence of persons being afflicted by a malady due to exposure to The Contaminant. For example, the item might



state that some people, or a few people, or many people, would experience a skin rash after exposure to a particular chemical.

**Verbal-Probabilistic Presentation of Risk Information** occurs when the item includes a non-quantitative statement about the likelihood of harm from exposure to The Contaminant. This statement is not just a statement of linkage, or a statement that The Contaminant could or might produce a malady. Comments that indicate that the public is "safe," or a similar statement of low probability, are considered verbal-probabilistic presentations. For example, an item might state that a person is "not very likely" to contract lung cancer from exposure to radon, or that a person is somewhat more likely to contract lung cancer from exposure to asbestos if that person is also a smoker.

**Numeric Presentations of Risk Information** report in quantitative form the levels of incidence of harm, or the probability of harm, from The Contaminant. They can report comparative figures as well (e.g., changes across time, across groups, across hazards).

**Frequency of Incidence Presentation of Risk Information** gives descriptive statistics (raw data--not ratios, percentages, or proportions) about the number of people who contract a malady due to exposure to The Contaminant. For example, an item might say that it is estimated that 200 people contracted lung cancer last year due to exposure to radon.

**Probability of Incidence Presentation of Risk Information** involves use of some form of probability statement to estimate the likelihood of a person contracting a malady due to exposure to The Contaminant. Probability estimates include use of a ratio or proportion (e.g., one out of a million) or a percentage (e.g., one tenth of one percent) to express these likelihoods. For example, an item might state that a person has a 2.5% chance of contracting cancer in a lifetime due to exposure to hazardous chemicals, or that one out of every 2,000 people who breathe hazardous levels of a particular chemical will contract liver damage.

**Prescriptive Presentation** occurs when the item includes information that suggests that readers take particular behavioral steps to decrease the likelihood of harm or increase the likelihood of being healthy. Prescriptive presentation includes testimonials (e.g., a source saying what she would do herself) or suggestions (e.g., a source recommending what others should do). Suggestions that people avoid The Contaminant, or take protective steps when dealing with The Contaminant, are considered Prescriptive Presentations when the contaminant is linked to a malady.

Protaminants are those artificial substances that, as a byproduct, can enhance or maintain health.

-R-

Release refers to the intentional or accidental release, or suspected release, of The Contaminant into the environment (air, ground, water) through unsanctioned or accidental ways (e.g., spills, illegal dumping, seepage) or through more sanctioned ways such as controlled releases of pollutants from industries. A release can be a discrete event or series of releases over time. Normal uses of chemicals such as pesticides are not considered releases. To be coded as containing information about a release, the item must be explicit that The Contaminant has been released from containment (e.g., spill of a chemical, accidental release of radiation, planned release of a toxic substance, dumping of hazardous medical waste). Outside of circumstances such as the dumping of hazardous waste, contagion from infectious organisms through human, animal or insect transmission would not be considered a release.

Rule of Inclusion: An item may concern a specific contaminant such as carbon monoxide as "the contaminant," yet make no linkage between carbon monoxide specifically and a malady. However, this same item may indicate that carbon monoxide is a component of air pollution (a broader, more encompassing term), and link air pollution to a malady. Under these circumstances of inclusion, the item is coded as linking the contaminant (carbon monoxide) to a malady (due to inclusion). Generally, under these circumstances, anything said in the item about the more general term (air pollution) applies as well to the specific contaminant.

Similarly, the item might concern "air pollution" as the contaminant, yet not link the broad term to a malady. If the item indicates that carbon monoxide is a component of air pollution, and links carbon monoxide to a malady, then air pollution can be coded as linked to a malady. Generally, under these circumstances, anything said about the more specific contaminant (carbon monoxide) applies as well to the more general term.

However, an item could concern two or more components of air pollution. One, "the contaminant," is not linked to a malady in the item. Another, say carbon monoxide, is linked to a malady. The contaminant in this case cannot be linked to a malady simply because they are both components of air pollution.

-S-

Superfund refers to the federal program to clean up toxic waste sites, formally called the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980. The most serious sites are considered for, and put on, the National Priorities List (NPL) Superfund sites. Many other sites are on the National hazardous waste inventory. New sites are turned up from time to time.

## -T-

**Toxic Chemicals** are defined by Section 313 of the Emergency Planning and Community Right-to-Know Act. The chemicals on this list were selected by Congress primarily due to their chronic or long-term toxicity. Estimates of releases of these chemicals into air, water, or land must be reported annually and entered into the Toxic Release Inventory. Also see **Extremely Hazardous Substances**, **Hazardous Substances**.

**Trauma** refers to immediate bodily injury caused by mechanical (not chemical) means.

## -U-

**Unplanned Events** are accidents or unexpected events that may have been planned by some agent. Also see **Planned Events**.

SECTION AA: BUZZWORDS FOR CONTAMINANTS AND MALADIES  
FOR USE IN SELECTION PROTOCOL ONLY

AIDS  
Acid Rain  
Air Pollution  
Alcohol  
Bacteria  
Carbon Monoxide  
Chemical  
Chlorine  
Chlorofluorocarbons  
Cocaine  
Contaminant  
Diet  
Disease  
Food Poisoning  
Garbage  
Gasoline  
Hazardous Substance  
Hazardous Waste  
Health  
Illness  
Insecticide  
Mercury  
Methane  
Nicotine  
Nitrates  
Nuclear  
Oil  
Organism  
Ozone  
Pesticide  
Petroleum  
Pollution  
Radiation  
Radioactive  
Radon  
Smog  
Smoking  
Spill  
Tobacco  
Toxic Substance  
Virus  
Waste  
Water Pollution

SECTION AB: MALADIES ASSOCIATED WITH EXPOSURE TO CONTAMINANTSMaladies From Chemicals

Acro-osteolysis  
 Angina  
 Anorexia  
 Asthma  
 Bronchitis  
 Chest Tightness  
 Chloracne  
 Cholestatic Jaundice  
 Conjunctivitis  
 Convulsions  
 Coronary Artery Disease  
 Coughing  
 Delirium  
 Dermatitis  
 Dizziness  
 Drowsiness  
 Eye Burn  
 Fatigue  
 Hallucinations  
 Headache  
 Heart Disease  
 Hepatic Angiosarcoma  
 Hepatitis  
 Hepatosplenomegaly  
 Lethargy  
 Liver Damage  
 Lung Cancer  
 Methemoglobinemia  
 Nausea  
 Neurobehavioral Abnormalities  
 Numbness or Tingling (Extremities)  
 Irritative Dermatitis  
 Pulmonary Edema  
 Raynaud's Phenomenon  
 Reperatory Irritation  
 Retinal Microaneurysms  
 Shortness of Breath  
 Skin Burns  
 Skin Rashes  
 Skin Thickening  
 Systemic Collapse  
 Vomiting  
 Weight Loss (Unintentional)

Maladies From Organisms

Actinomycosis  
 Amebiasis  
 Anthrax  
 Ascariasis  
 Aspergillosis  
 Bacteremia  
 Beef Tapeworm Infection  
 Blastomycosis  
 Botulism  
 Bronchitis  
 Brucellosis  
 Cat Scratch Disease  
 Chickenpox  
 Cellulitis  
 Cholera  
 Chromomycosis  
 Coccidioidomycosis  
 Colorado Tick Fever  
 Conjunctivitis  
 Croup  
 Cryptococcosis  
 Cytomegalic Inclusion Disease  
 Diphtheria  
 Drug Rash  
 Eczema  
 Encephalitis  
 Encephalomyelitis  
 Enterobiasis  
 Epidemic Gastroenteritis  
 Erysipeloid  
 Exanthem  
 Fish Tapeworm Infection  
 Fluke  
 Gastroenteritis  
 Geotrichosis  
 Hepatitis  
 Herpangina  
 Herpes Simplex  
 Herpes Zoster  
 Herpetic Gingivostomatitis  
 Histoplasmosis  
 Histotoxic Clostridial Disease  
 Hookworm Disease  
 (Continued)

SECTION AB, continued...Maladies From Organisms:

Influenza	Rabies
Keratoconjunctivitis	Ratbite Fever
Leishmaniasis	Respiratory Syncytial
Leprosy	Reye's Syndrome
Leptospirosis	Rheumatic Fever
Listeriosis	Rhinosporidiosis
Lackjaw/Tetanus	Roseola Infantum
Lymphadenitis	Roundworm
Lymphocytic Choriomeningitis	Rubeola/Measles
Maduromycosis	Rubella/German Measles
Malaria	Salmonella
Measles	Sarcoidosis
Meningitis	Scarlet Fever
Meningoencephalitis	Shigellosis
Mollusum Contagion Tumors	Smallpox
Mononucleosis	Sporotrichosis
Mumps/Parotitis	Staphylococcal Infection
Myocarditis	Streptococcal Infection
Necrotizing Enteritis	Strongyloidiasis
Neurotoxic Clostridial Disease	Syphilis
Nocardiosis	Systemic Candidiasis
Orchitis	Tapeworm
Paralytic Disease	Toxocariasis
Parainfluenza	Toxoplasmosis
Penicilliosis	Trench Fever
Pericarditis	Trichinosis
Pharyngoconjunctival Fever	Trichuriasis
Phycomycosis	Tuberculosis
Plague	Tularemia
Pleurodynia	Typhoid Fever
Pneumonia	Typhus
Polioomyelitis	Vulvovaginitis
Pork Tapeworm Infection	Whooping Cough
Protozoa	Yellow Fever
	Warts

SECTION AC: "LOCALITY" CODE FOR NEWSPAPERS IN ANALYSIS

The **LOCALITY** code for each newspaper is divided into five values: **Local**, **Regional**, **Distant**, **Omnipresent**, and **Indeterminate**. Localities are also coded according to the higher order of closeness. For example, a spill of a hazardous chemical in Sparta is both in Sparta itself (therefore, local) and in Monroe County (therefore, regional). The locality would be coded as local. Areas outside of places considered local, yet within the region, are coded as regional.

Locality codes were determined in consultation with knowledgeable staffers on each newspaper, and/or by checking Audit Bureau of Circulations penetration data.

Areas considered **Local** and **Regional** for this study are:

<u>NEWSPAPER</u>	<u>"LOCAL"</u>	<u>"REGIONAL"</u>
Algoma Record-Herald	Algoma	Kewaunee County
Brookfield News	Brookfield	Butler, Elm Grove, Menomonee Falls, New Berlin, Waukesha, Wauwatosa, West Allis
Chicago Sun-Times	Chicago Metro	Illinois counties of Cook, DuPage, Kane, Lake, McHenry, Will; northern Lake and Porter Counties, Indiana.
Chicago Tribune	Chicago Metro	Illinois counties of Cook, DuPage, Kane, Lake, McHenry, Will; northern Lake and Porter Counties, Indiana.
Chippewa Falls Herald-Telegram	Chippewa Falls	Chippewa County, Eau Claire County
Delavan Enterprise	Delavan, Darien	Walworth County
DePere Journal	DePere	Southern Brown County, Eastern Outagamie County. Greenleaf, Kaukauna, Little Chute, Wrightstown
Eau Claire Leader-Telegram	Eau Claire Metro	Counties of Chippewa, Clark, Dunn, Eau Claire, Pepin
Franklin-Hales Corners Hub	Franklin, Hales Corners	Greendale, Greenfield, Muskego, New Berlin, Oak Creek

NEWSPAPER	"LOCAL"	"REGIONAL"
Menomonee Falls News	Menomonee Falls	Brookfield, Butler, Germantown, Lannon, Milwaukee, Mequon
Milwaukee Journal	Milwaukee Metro Waukesha	Counties of Dodge, Fond du Lac, Jefferson, Kenosha, Ozaukee, Racine, Sheboygan, Walworth, Washington, Waukesha
Milwaukee Sentinel	Milwaukee Metro	Counties of Dodge, Fond du Lac, Jefferson, Kenosha, Ozaukee, Racine, Sheboygan, Walworth, Washington, Waukesha
Monroe County Democrat	Sparta	Counties of Jackson, Juneau, LaCrosse, Monroe
Oconomowoc Enterprise	Oconomowoc	Counties of Jefferson, Waukesha; Southeast Dodge County (Ashippun)
Oregon Observer	Oregon, Brooklyn	Dane County
Sheboygan Press	Sheboygan	Counties of Sheboygan and Ozaukee; Towns of Campbellsport, Cleveland, Kewaskum, Kiel, Kohler, Mt. Calvary, Newburg, New Holstein, Newton, St. Cloud, St. Nazianz
Sparta Herald	Sparta	Counties of Jackson, Juneau LaCrosse, Monroe
Stoughton	Stoughton	Dane County
Waukesha Freeman	Waukesha	Waukesha County



### SECTION AD: FAMILIAR BUT HAZARDOUS SUBSTANCES

These are substances that members of the general public might commonly use. Based on The Environmental Consumer's Handbook (EPA 1990) and "Household Hazardous Waste" (Citizens for a Better Environment), these substances (as amended) include:

Air Fresheners	Lawn Fertilizers
Antifreeze (Auto)	Lighter Fluid
Auto Body	Mildew Cleaners
Repair Products	
Car Batteries	Mothballs
Cleaners:	Motor Oil
Carburetor	Nail Polish & Remover
Drain Openers	Paints
Fabric	Paint Stripper
Gun	Pesticides
Oven	and Repellants
Tub and Tile	Photographic Chemicals
Upholstery (solvent)	Plant Sprays
Degreasers	Rodent Poison
(auto, household)	Rug Shampoo
Disinfectants	Rust Remover
(esp. Kitchen,	Silver Polish
Bathroom)	Spot Remover
Flea Spray, Collars	Swimming Pool Chemicals
Fungicides	Stains (wood)
Furniture Polish	Varnishes
Gasoline	and Varnish Removers
Glue	Weed Killers

**NOTE:** This list will likely not be exhaustive. Also considered a "Familiar but Hazardous Substance" will be any substance that the item depicts as commonly available to consumers that can provide an environmental health hazard.

#### **Drugs and Medicines:**

Excluded are drugs and medicines, except when the context concerns disposal of unused or expired drugs and medicines. Potential for overdose, or side effects, of drugs and medicines, for example, would not put drugs and medicines in the category of Familiar but Hazardous Substances. Circumstances in which drugs and medicines could be released into the environment would put drugs and medicines into the category of Familiar but Hazardous Substances. Coding for the Contaminant Special Code in regard to drugs and medicines should reflect this distinction.

SECTION AE: RISK SIGNALS

RISK SIGNALS are words or phrases that indicate some danger is present even if that danger is not a main point of the item or its frame. Words that are risk signals are the following and any close synonyms used in the context of human health:

communicable	noxious
contagious	perilous
contaminated	
danger	poisonous
deadly	risky
epidemic	threat
fear	
harmful	toxic
hazardous	unsafe
ill-effects	virulent
infectious	warning
miasmatic	worry

SECTION AF:  
CONTAMINANT CODE FOR SOME HAZARDOUS SUBSTANCES

(See EPA Title III List of Lists for More Complete Listing.)

**NOTE ON DETERMINING 200-LEVEL CODE FROM LIST OF LISTS:**

If the substance is listed only under the column labeled Sec. 313 in the EPA Title III List of Lists, then it is coded as 210.

If the substance has an entry under the column labeled CERCLA RQ, ("RQ" means Reportable Quantity) but does not have an entry under the two columns for EHS, then it is coded in the 220 series.

If the substance is listed under either of the EHS columns, regardless of its listing elsewhere, it is coded as part of the 230 series.

The following are contaminant codes for some substances:

Contaminant (200s)	Code
1,1,1 Trichloroethane	220
2-4-5-T	220
Acetone	220
Aldrin	230
Aluminum (fumes, dust)	210
Ammonia	230
Arsenic	210
Asbestos	220
Barium	210
Benzene	220
Benzo[a]pyrene	220
Cadmium	210
Carbon Disulfide	230
Carbon Tetrachloride	220
Chlorinated Organic Solvents	200
Chlordane	230
Chlorine	230
Chloroform	230
Chromic Acid	220
Chromium	210
Creosote	220
Cyanides	220
DBCP	220
DDT, DDD, DDE	220
Dieldrin	220
Dioxins	241

Contaminant (200s)	Code
Ethyl Ether	220
Ethylene	210
Formaldehyde*	230
*Heavy Metals*	210
Heptachlor	220
Hydrazine	230
Hydrochloric Acid	220
Isopropyl Alcohol	210
Lead	220
Lindane	230
Manganese	210
Mercury	220
Methanol	220
Methoxychlor	220
Methyl Chloride	220
Methylene Chloride	220
Nickel	210
Nitric Acid	230
Nitroglycerin	220
Parathion	230
*Petrochemicals*	200
Phthalates	220
Polychlorinated Biphenyls (PCBs)	220
Polycyclic Aromatic Hydrocarbons (PAH)	220
Propylene (Propene)	210
Strychnine	230
Sulphur Dioxide	230
Sulphuric Acid	230
Tetrachloroethylene	220
Trichloroethylene	220
Toluene	220
Urethane	220
Vinyl Chloride	220
Volatile Organic Compounds (VOCs)	200
Warfarin	230
Xylene	220

SECTION AG:  
SITE CODES FOR SOME WISCONSIN AND CHICAGO-AREA SUPERFUND SITES

<u>Code</u>	<u>Site Name</u>	<u>County</u>	<u>In or Near Community Of</u>
	<u>Wisconsin</u>		
01	Algoma Municipal Landfill	Kewaunee	Algoma, Ahnapee
02	Better Brite	Brown	DePere
03	City Disposal Corp. Landfill	Dane	Dunn Township, Oregon
04	Delavan Municipal Well No. 4	Walworth	Delavan
05	Eau Claire Municipal Well Field	Eau Claire	Eau Claire
06	Fadowski Drum Disposal	Milwaukee	Franklin
07	Fort Howard Paper Co. Lagoons	Brown	Green Bay
08	Hagen Farm (on County A)	Dane	Stoughton
09	Hunt's Disposal Landfill	Racine	Caledonia
10	Kohler Co. Landfill	Sheboygan	Kohler
11	Lauer I Sanitary Landfill (alias Waste Mgt. Lauer I, United Waste Systems)	Waukesha	Menomonee Falls
12	Madison Metro Sewerage Sludge District Lagoons	Dane	Madison
13	Master Disposal Landfill	Waukesha	Brookfield
14	Moss-American (alias Kerr-McGee)	Milwaukee	Milwaukee
15	Muskego Sanitary Landfill	Waukesha	Muskego
16	N.W. Mauthe Co.	Outagamie	Appleton
17	National Presto (alias Hallie Site)	Eau Claire	Eau Claire, Chippewa Falls, Hallie
18	Northern Engraving	Monroe	Sparta
19	Oconomowoc Electroplating	Dodge	Ashippun
20	Omega Hills North Landfill (alias Germantown Landfill I, Chem. Waste Mgt. Lauer II)	Washington	Germantown

<u>Code</u>	<u>Site Name</u>	<u>County</u>	<u>In or Near Community Of</u>
<u>Wisconsin</u>			
21	Onalaska Municipal Landfill	LaCrosse	Onalaska
22	Sheboygan River and Harbor	Sheboygan	Sheboygan, Kohler, Sheboygan Falls
23	Stoughton City Landfill	Dane	Stoughton
24	Tomah Armory	Monroe	Tomah
25	Tomah Fairgrounds	Monroe	Tomah
26	Tomah Municipal Landfill	Monroe	Tomah
27	Waste Management (alias Brookfield Landfill)	Waukesha	Brookfield
28	Waste Research & Reclamation	Eau Claire	Eau Claire
<u>Chicago Area: Illinois</u>			
40	Amoco Chemicals Joliet Landfill	Will	Joliet
41	DuPage County Landfill (Blackwell Forest Preserve)	Dupage	Warrenville
42	Galesburg/Koppers Co. (alias Burlington Northern Rail Yard)	Knox	Galesburg
43	H.O.D. Landfill (alias CCD Landfill)	Lake	Antioch
44	Johns-Manville Corp. pits	Lake	Waukegan.
45	Joliet Army Ammunition Plant General Reference (2 sites)	Will	Joliet
46	Load-Assembly-Packing Area	Will	Joliet
47	Manufacturing Area	Will	Joliet
48	Kerr McGee West Chicago Facility General Reference (4 sites)	DuPage	West Chicago
49	Kress Creek/West Branch of DuPage River	DuPage	West Chicago
50	Reed-Keppler Park	DuPage	West Chicago
51	Residential Areas	DuPage	West Chicago
52	Sewage Treatment Plant	DuPage	West Chicago
53	Lenz Oil Service	Cook	Lemont
54	Outboard Marine Corp. areas	Lake	Waukegan

<u>Code</u>	<u>Site Name</u>	<u>County</u>	<u>In or Near Community Of</u>
<u>Chicago Area: Illinois</u>			
55	Petersen Sand & Gravel	Lake	Libertyville
56	Tri-County Landfill (Waste Management of Illinois)	Kane	South Elgin
57	Waucanda Sand & Gravel	Lake.	Wauconda
58	Woodstock Municipal Landfill	McHenry	Woodstock
59	Yeoman Creek Landfill	Lake	Waukegan
<u>Chicago Area: Indiana</u>			
70	American Chemical Service	Lake	Griffith
71	Lake Sandy Jo (alias M&M Landfill)	Lake	Gary
72	MIDCO General Reference (2 sites)	Lake	Gary
73	MIDCO I	Lake	Gary
74	MIDCO II	Lake	Gary
75	Ninth Avenue Dump	Lake	Gary

**APPENDIX B:**

**SOURCES USED FOR SUPERFUND CASE STUDIES**



## Sources used for National Presto Industries Site, Eau Claire, WI

Interviews:

Mark Baker, Editor, Chippewa Falls Herald-Telegram  
 James E. Boettcher, District Hydrogeologist, Wisconsin Department of  
 Natural Resources, Eau Claire, WI  
 Kim Bro, Environmental Engineer, Wisconsin Division of Health, Madison, WI  
 Darryl Farmer, Director of Environmental Health, Eau Claire  
 City-County Health Department  
 Bill Gharrity, Reporter, Eau Claire Leader-Telegram  
 Mike Gifford, Remedial Project Manager, EPA Region 5, Chicago  
 Gary Johnson, Regional Editor, Eau Claire Leader-Telegram  
 Janean Marti, Chippewa Falls News Bureau Chief, Eau Claire Leader-Telegram  
 John Matthews, former Reporter for the Chippewa Falls Herald-Telegram,  
 now Assistant Director and Business Policy Analyst,  
 Senate Republican Caucus, Madison, WI  
 Barbara Shay, former Reporter for the Chippewa Falls Herald-Telegram,  
 now Reporter, Wisconsin Rapids Daily Tribune  
 David Weitz, District Information Officer, Wisconsin Department of  
 Natural Resources, Eau Claire, WI

Printed Reports:

U.S. Environmental Protection Agency Site Fact Sheets

Content Analysis:

Chippewa Falls Herald-Telegram: 1985-1991  
 Eau Claire Leader-Telegram: 1983-1991

## Sources used for the Better Brite Chrome and Zinc Sites, De Pere, WI

Interviews:

Terry Anderson, Environmental Reporter, Green Bay Press-Gazette  
 Kim Bro, Environmental Engineer, Wisconsin Division of Health, Madison, WI  
 Dave Crehore, Public Information Officer, Wisconsin Department of  
 Natural Resources, Green Bay, WI  
 Marie Creviere, Editor, De Pere Journal  
 Paul Creviere, Publisher, De Pere Journal  
 Terry Koehn, Environmental Specialist and Project Manager for the  
 Better Brite site, Wisconsin Department of Natural Resources,  
 Green Bay, WI  
 Dave Linnear, Remedial Project Manager, EPA Region 5, Chicago  
 Kathleen McGillis, former City Editor of the Green Bay News-Chronicle,  
 now Reporter for the Green Bay Press-Gazette  
 Marjorie Paul, Reporter, De Pere Journal

Doug Rossberg, Program Supervisor for the Solid and Hazardous Waste Program, Wisconsin Department of Natural Resources, Madison WI

Printed Reports:

U.S. Environmental Protection Agency Site Fact Sheets

Content Analysis:

De Pere Journal: 1986-1991  
Green Bay News-Chronicle: 1985-1990  
Green Bay Press-Gazette: 1979-1981, 1986-1991

Sources used for the Sheboygan River & Harbor and the Kohler Landfill Sites, Sheboygan, WI

Interviews:

Kim Bro, Environmental Engineer, Wisconsin Division of Health, Madison, WI  
Barbara N. Ebenreiter, President, Sheboygan County Chamber of Commerce, and co-founder, Sheboygan Water Quality Task Force, Sheboygan, WI  
Bonnie Eleder, Remedial Project Manager, EPA Region 5, Chicago  
Barry Ginter, Outdoor Writer, Sheboygan Press  
Sandra Kimball, Editor, The Sheboygan Falls News  
Chuck Ledin, Chief, Water Resources Planning & Policy, Wisconsin Department of Natural Resources, Madison, WI  
Kurt W. Mueller Jr., former reporter, Sheboygan Press

Printed Reports:

Sheboygan County Water Quality Task Force, Planning and Management for the Removal of Contaminated Sediments from the Sheboygan River and Harbor, 1987  
Sheboygan County Water Quality Task Force, Sheboygan River and Harbor Sediment Pollution Abatement Program, 1989  
U.S. Environmental Protection Agency Site Fact Sheets  
Wisconsin Department of Natural Resources, Sheboygan River Remedial Action Plan, 1989

Content Analysis:

The Sheboygan Falls News: 1984-1989  
Sheboygan Press: 1984-1991

**APPENDIX C:**

**TOXICS RELEASE INVENTORY (TRI) CASE STUDY  
CONTENT ANALYSIS CODING GUIDE**

Selection ProtocolCriteria:

Is the newspaper a daily newspaper in the seven states of Illinois, Indiana, Iowa, Michigan, Minnesota, Ohio, or Wisconsin?

If NO, exclude.

If YES, Does the newspaper subscribe to the Associated Press?  
[See Editor and Publisher (1991a) Yearbook.]

If YES, begin INITIAL CODING. If NO, exclude.

Initial Coding:

Column(s)	Variable	Scheme
1-3	Community	Code for the community in the 7-state region served by this daily newspaper. (See SECTION CA for Listing.)
4	SMSA?	Is community in a Standard Metropolitan Statistical Area (SMSA)?  0 No 1 Yes 2 Central City of SMSA
5-7	County	Code for the county. (See SECTION CA for Listing.)
8	State	1 Illinois. 2 Indiana. 3 Iowa. 4 Michigan. 5 Minnesota. 6 Ohio. 7 Wisconsin.
9-11	Newspaper	Name of daily newspaper. (See SECTION CB for Listing.)
12-14	Circulation	Circulation in thousands.
15	Ownership	Newspaper ownership: 1 Local, independently owned. 2 Owned by chain, local headquarters. 3 Owned by chain, headquarters in same state. 4 Owned by chain, headquarters out-of-state. 9 Cannot be determined. [NOTE: "Chain" refers to ownership of two or more newspapers in different communities.]

16-17	Staffing	Number of non-management editors, columnists, and specialty writers/reporters listed in Editor and Publisher Yearbook. Code 00-98. 99=Not ascertainable.
18	Science/Environment Writer	Does newspaper list at least one science and/or environment writer or editor in E&P Yearbook?  0 No 1 Yes 9 Not ascertainable.
19-22	Population Rank	Code as rank of community population. Lowest=001.0. [NOTE: For Population, Minority, and Business ranks, do not use a decimal point but assume the fourth coding column to be a decimal place.]
23-26	Minority Rank	Code as rank of "Minority." Lowest=001.0. ["Minority"=Minority and non-public school enrollment as proportion of school enrollment in community's school district.]
27-30	Business Rank	Code as rank of "Retail Outlets." Lowest=001.0. ["Retail Outlets"=Retail outlets within six miles of city center, as a proportion of community population.]
31	INFORM Rank	Is community's county listed as one of INFORM's "Top 20" dirtiest counties? 0 No. 1 Yes, for a specific category of releases, but not for Total. 2 Yes, for Total Toxic Releases.
32-39	Total Toxic	Total toxic releases (in lbs.) in community's county as listed by the INFORM report, based on TRI.

Item Coding: Newspapers in the analysis that did not run an item (news story or editorial) on the INFORM, Inc., report on "Toxic Clusters" will be coded as 999Z in Cols. 40-43. Analysis runs from July 24 through August 31, 1991. If a newspaper runs essentially the same news story (excluding editorials) more than once on the same day (e.g., in different editions), ~~analyze~~ only the longer news story; exclude the shorter news stories from the analysis altogether. If a paper runs items on different days, or different items (e.g., story and editorial) on the same day, code all coverage as though it were a single incidence of coverage. Follow specific instructions given for certain codes to follow. Information to be coded in an item includes information in any accompanying graphics.

NOTE on SMSAs: In newspaper is published in central city of SMSA, "local" is any county even part of which is within the SMSA. If newspaper's community is in SMSA but not in the central city, "local" refers only to that newspaper's community or county; other communities or counties in the same SMSA are "regional," even if they are not abutting the newspaper's community or county. The SMSA is treated as a geographical unit when the SMSA is "regional" to another paper in a county abutting the SMSA counties.

Column(s)	Variable	Scheme
40-43	Item ID	Designated number on photocopy of item. Code 018Z to 117A, plus 999Z.  [If newspaper did not run an item based on the INFORM report, code as 999Z. SKIP to COL 65.]  [If more than one item, put the code for additional items after col. 68.]
44-46	Date	Date (Month/Day) the story appeared. [Code numerically, e.g., 731, 801, etc. If more than one item, code earliest date.]
47	Item Type	Code: 1 Single news story. 2 Single editorial. 3 Two news stories. 4 News story and editorial.
48	Item Origin	Code: S Staff written. M Mix of staff and wire. W Wire.
49	Item Location	Code: 1 Front page. 2 Elsewhere.  [If one of multiple items is on front page, code as front page.]

50-51            Item Length            Count number of paragraphs.  
[If more than one item, count total  
paragraphs for all items.]

NOTE: For multiple items--code cols. 52-58, 60-63 to highest numerical  
value present across items.

52               Risk Linkage            Was a linkage made between the toxic  
   releases and any specific maladies that  
   pose a risk to human health, anywhere in  
   the item?

0    No. [Go to 54]  
1    Yes. [Go to 56]  
2    Yes, in the first 3 paragraphs.  
     [Go to 56]

54               "Toxic"  
   Titles            Does the item use the title of the  
   report ("Toxic Clusters...") or the  
   title of the "Toxics Release Inventory?"

Code: 0    No. [Go to 55]  
1    Yes. [Go to 55]  
2    Yes, in first 3 paragraphs.  
     [Go to 55]

55               Risk Signal            Outside of the use of the toxic titles  
   ("Toxic Clusters," "Toxics Release Inven-  
   tory"), was a Risk Signal present in the  
   item? (See SECTION CC.)

0    No. [Go to 56]  
1    Yes. [Go to 56]  
2    Yes, in first 3 paragraphs.  
     [Go to 56]

56 Item Localization:  
Local

Does the item refer to the status of toxic releases for the paper's community or county?

[NOTE: If paper is in central city of Standard Metropolitan Statistical Area, include as local any county that, even in part, is included in that SMSA.]

- 0 No. [Go to 60]
- 1 Yes. [Go to 57]
- 2 Yes, in first 3 paragraphs.  
[Go to 57]

57

IF YES: Outside of a simple toxic release ranking for its own community/county, does the item present comparative information to indicate that the level of local toxic release is worse (higher) than other, non-local community or county?

[NOTE: Comparative information, for example, would be the ranks of other communities or counties in the same category of release (e.g., total, air), descriptive information (such as pounds of toxic substances released "here vs. there"), or qualitative statements of comparison in regard to toxic releases or related pollution.]

- 0 No. [Go to 58]
- 1 Yes. [Go to 58]

58

Outside of a simple toxic release ranking for its own community/county, does the item present comparative information to indicate that the level of local toxic release is better (lower) than other, non-local community or county?

- 0 No. [Go to 59]
- 1 Yes. [Go to 59]

59

If the newspaper is in Central City of SMSA, does the (an) item compare releases in communities/counties that are part of the SMSA?

- 0 No. [Go to 60]
- 1 Yes. [Go to 60]
- 9 Not Central City of SMSA.  
[Go to 60]





- 64      **Headline**  
          **Localization**      Does the (a) headline indicate the location  
                                       of toxic releases?
- [Code to the most local sites. Code as  
 Omnipresent only if headline makes that  
 kind of assertion.]
- 0    No.  
 1    Yes: Local.  
 2    Yes: Regional.  
 3    Yes: Statewide.  
 4    Yes: Distant.  
 5    Yes: Omnipresent.
- 68      **Special Code**              Place an X in Col. 68 for ALL cases.
- 69-72   **Multi-Item**              Item number for analysis of multiple items.
- CF      **Headline:**  
          **Risk**                      Is a Risk Signal present in the (a) headline?
- [See SECTION CC for a list of Risk Signal words.]
- 0    No.  
 1    Yes.
- CF      **Press Kit**                      Was newspaper sent an Inform, Inc. press kit?
- 0    No.  
 1    Yes.
- CF      **Proximity to**  
          **Press Conf.**              How close was newspaper to the nearest press  
                                       conference? [Conferences were held in Detroit,  
                                       MI, Green Bay, WI, and Whiting, IN.]
- 2    Same SMSA.  
 1    In county adjacent to press  
      conference SMSA.  
 0    Further away than above.
- CF      **N Manufacturers**              Number of industrial facilities in county (or  
                                       SMSA if newspaper is in SMSA central city).  
                                       Use as denominator for "Total Toxic" Releases  
                                       to determine Toxic Releases per Industry.
- CF      **Community Reliance**              Proportion of people employed by manufacturers  
          **on Manufactur-**              in County divided by population of county.  
          **ing**                              (Use SMSA data if newspaper is in central city  
                                       of SMSA.)

CF = data entered into command or system files.

## DEFINITIONS

-L-

**Linkage** refers to a connection between exposure Toxic Releases and contraction of a malady made in the item. (Also see Rule of Inclusion.)

**Localization** refers to whether information about the toxic releases is made local, regional, statewide, distant, or omnipresent (q.v.). If a newspaper is within a Standard Metropolitan Statistical Area (SMSA), the counties included in the SMSA are considered "local" to that newspaper, such that a report on toxic releases from any one of those counties is sufficient to classify the item as local. Regional counties would be those abutting the newspaper's county. If the paper is in an SMSA, regional counties are those abutting, but not including, the SMSA counties.

-M-

**Maladies**, for purposes of our study, are human diseases, disorders, or ailments that can be reliably attributed to exposure to Toxic Releases.

-O-

**Omnipresent** refers to the Toxic Release being depicted as general in location, not to exclude it being local as well (even though this is not expressed). For example, an "omnipresent" item state that the air in the Midwest has been polluted by chemicals. If the item also contains a reference that the air locally is also polluted, then the item would also be coded as local. If a regional reference, then code also as regional. If the item specifically states that the Toxic Release is distant, then code also as Distant. If the item specifically states that the Toxic Releases are in many places, then code as Omnipresent.

-R-

**Retail Outlets:** The number of retail outlets is determined by the number of banks and the number of stores within six miles of the city center as listed for each community in Editor and Publisher's (1991b) Market Guide. Ranking is based on per capita information for the community.

**Rule of Inclusion:** An item may concern a specific contaminant such as carbon monoxide as a Released toxin, yet make no linkage between carbon monoxide specifically and a malady. However, this same item may indicate that carbon monoxide is a component of air pollution (a broader, more encompassing term), and link air pollution to a malady. Under these circumstances of inclusion, the item is coded as linking the contaminant (carbon monoxide) to a malady (due to inclusion). Generally, under these circumstances, anything said in the item about the more general term (air pollution) applies as well to the specific contaminant.

-S-

**Status of Toxic Releases:** The status of toxic releases refers to a comparison made in the text of the item between the levels of toxic releases in two or more locales. This comparison may be rather direct (e.g., that toxic releases in the community are greater than toxic releases in another community) or rather indirect (e.g., that the county is among the top 20 in toxic releases in the Midwest, ranks tenth in the state in toxic releases, and so forth). A simple reporting of the amount of toxic release, without a means of comparing it to other locales at least indirectly, would not be a reporting of the status of toxic releases. When coding **Omnipresent** toxic releases, some statement of level of toxic releases (e.g., that the Midwest is highly polluted) is sufficient to indicate omnipresence in the seven state area.

## SECTION CA: COMMUNITY and COUNTY CODES

NOTE: The following communities in the seven-state region have daily newspapers as listed in SECTION CB. The code for the community appears to the left of each community. The name of the county is below the community name. County codes are to the right of the county name.

000 Community  
County 000

## ILLINOIS

255 Alton	272 Effingham	363 Mount Carmel
Madison 233	Effingham 247	Wabash 307
256 Aurora	273 Eldorado	364 Olney
Kane 234	Saline 248	Richland 308
257 Beardstown	274 Elgin	365 Ottawa
Cass 235	Kane 234	LaSalle 254
254 Belleville	275 Flora	284 Paris
St. Clair 232	Clay 249	Edgar 905
258 Belvidere	276 Freeport	285 Paxton
Boone 236	Stephenson 250	Ford 906
259 Benton	252 Galesburg	286 Pekin
Franklin 237	Knox 230	Tazewell 907
248 Bloomington	277 Harrisburg	287 Peoria
McLean 226	Saline 248	Peoria 908
260 Canton	278 Jacksonville	288 Pontiac
Fulton 238	Morgan 231	Livingston 401
261 Carbondale	251 Joliet	289 Quincy
Jackson 239	Morgan 251	Adams 262
262 Carmi	279 Kankakee	290 Robinson
White 240	Kankakee 252	Rock Island 909
263 Centralia	280 Kewanee	337 Rock Island
Marion 241	Henry 253	Rock Island 909
264 Champaign	281 LaSalle	291 Rockford
Champaign 242	LaSalle 254	Winnebago 911
265 Charleston	282 Lawrenceville	292 Shelbyville
Coles 243	Lawrence 255	Shelby 912
247 Chicago	283 Libertyville	293 Springfield
Cook 225	Lake 255	Sangamon 914
266 Clinton	355 Lincoln	294 Sterling
DeWitt 244	Logan 301	Whiteside 916
250 Crystal Lake	356 Litchfield	295 Streator
McHenry 228	Montgomery 302	LaSalle 254
267 Danville	357 Macomb	253 Taylorville
Vermillion 245	McDonough 303	Christian 231
268 Decatur	358 Marion	296 Watseka
Macon 246	Williamson 304	Iroquois 917
269 DeKalb	359 Mattoon	297 Waukegan
DeKalb 310	Coles 243	Lake 256

## ILLINOIS, cont'd.

249 Dixon	361 Monmouth	298 West Frankfort
Lee 227	Warren 305	Franklin 237
270 DuQuoin	362 Morris	299 Wheaton
Perry 311	Grundy 306	DuPage 257
271 Edwardsville		
Madison 233		

## INDIANA

340 Anderson	072 Goshen	342 New Albany
Madison 067	Elkhart 066	Floyd 289
341 Auburn	073 Greencastle	343 New Castle
DeKalb 288	Putnam 070	Henry 290
058 Bedford	074 Greenfield	048 Noblesville
Lawrence 056	Hancock 071	Hamilton 047
059 Bicknell	049 Greensburg	084 Peru
Knox 057	Decatur 048	Miami 080
060 Bloomfield	036 Hammond	042 Plymouth
Greene 058	Lake 036	Marshall 041
061 Bloomington	075 Hartford City	085 Portland
Monroe 059	Blackford 072	Jay 081
062 Bluffton	076 Huntington	052 Princeton
Wells 060	Huntington 073	Gibson 050
063 Brazil	039 Indianapolis	086 Rensselaer
Clay 061	Marion 038	Jasper 082
064 Chesterton	041 Jasper	045 Richmond
Porter 062	DuBois 040	Wayne 044
055 Clinton	077 Jeffersonville	043 Rochester
Vermillion 053	Clark 074	Fulton 042
056 Columbia	078 Kendallville	087 Rushville
Whitley 054	Noble 075	Rush 083
065 Columbus	050 Kokomo	053 Seymour
Bartholomew 063	Howard 049	Jackson 051
066 Connorsville	051 LaPorte	088 Shelbyville
Fayette 064	LaPorte 043	Shelby 084
067 Crawfordsville	079 Lafayette	038 South Bend
Montgomery 065	Tippecanoe 076	St. Joseph 037
047 Decatur	080 Lebanon	089 Spencer
Adams 046	Boone 077	Owen 085
068 Elkhart	081 Linton	040 Sullivan
Elkhart 066	Greene 058	Sullivan 039
069 Elmwood	082 Logansport	057 Terre Haute
Madison 067	Cass 078	Vigo 055
070 Evansville	344 Marion	090 Valparaiso
Vanderburgh 068	Grant 291	Porter 062
054 Fort Wayne	345 Martinsville	091 Vincennes
Allen 052	Morgan 292	Knox 057
046 Frankfort	044 Michigan City	092 Wabash
Clinton 045	LaPorte 043	Wabash 086

## INDIANA, cont'd

071 Franklin Johnson 069	346 Monticello White 293	093 Warsaw Kosciusko 087
037 Gary Lake 036	347 Muncie Delaware 294	094 Washington Davies 088
		095 Winchester Randolph 089

## IOWA

009 Ames Story 009	012 Davenport Scott 012	023 Mount Pleasant Amery 023
010 Atlantic Cass 010	013 Des Moines Polk 013	024 Muscatine Muscatine 024
001 Boone Boone 001	033 Dubuque Dubuque 033	025 Newton Jasper 025
002 Burlington Des Moines 002	014 Esterville Emmet 014	026 Oelwein Fayette 026
003 Carroll Carroll 003	015 Fairfield Jefferson 015	027 Oskaloosa Mahaska 027
004 Cedar Rapids Linn 004	016 Fort Dodge Webster 016	028 Ottumwa Wapello 028
005 Centerville Appanoose 005	017 Fort Madison Lee 017	029 Shenandoah Page 901
006 Charles City Floyd 006	018 Iowa City Johnson 018	034 Sioux City Woodbury 034
035 Cherokee Cherokee 035	019 Keokuk Lee 017	030 Spencer Clay 030
007 Clinton Clinton 007	020 LeMars Plymouth 020	338 Vinton Benton 286
008 Council Bluffs Pottawattamie 008	021 Marshalltown Marshall 021	339 Washington Washington 287
011 Creston Union 011	022 Mason City Cerro Gordo 022	031 Waterloo Blackhawk 031
		032 Webster City Hamilton 032

## MICHIGAN

212 Adrian Lenawee 194	224 Grand Rapids Kent 204	237 Monroe Monroe 216
213 Albion Calhoun 193	225 Greenville Montcalm 205	238 Mount Pleasant Isabella 217
208 Alpena Alpena 903	226 Hillsdale Hillsdale 206	210 Mt. Clemens Macomb 904
209 Ann Arbor Washtenaw 191	199 Holland Ottawa 181	203 Muskegon Muskegon 185
214 Bad Axe Huron 195	200 Houghton Houghton 182	239 Niles Berrien 196
211 Battle Creek Calhoun 193	201 Ionia Ionia 183	240 Owosso Shiawassee 219

## MICHIGAN, cont'd

198 Bay City Bay 180	227 Iron Mountain Dickinson 207	241 Petoskey Emmet 220
215 Benton Harbor Berrien 196	228 Ironwood Gogebic 208	204 Pontiac Oakland 186
216 Big Rapids Mecosta 197	202 Jackson Jackson 184	205 Port Huron St. Clair 187
217 Cadillac Wexford 198	229 Kalamazoo Kalamazoo 209	335 Royal Oak Oakland 902
218 Cheboygan Cheboygan 199	230 Lansing Ingham 210	242 Saginaw Saginaw 221
219 Coldwater Branch 200	231 Ludington Mason 211	243 Sault Ste. Marie Chippewa 222
197 Detroit Wayne 179	232 Manistee Manistee 212	244 South Haven Van Buren 224
220 Dowagiac Cass 201	233 Marquette Marquette 213	206 Sturgis St. Joseph 188
221 Escanaba Delta 202	234 Marshall Calhoun 192	245 Three Rivers St. Joseph 188
222 Flint Genesee 203	235 Menominee Menominee 214	207 Traverse City Grand Traverse 189
223 Grand Haven Ottawa 181	236 Midland Midland 215	246 Ypsilanti Washtenaw 190

## MINNESOTA

098 Albert Lea Freeborn 092	105 Fergus Falls Otter Tail 099	113 Red Wing Goodhue 107
099 Austin Mower 093	106 Hibbing St. Louis 100	114 Rochester Olmsted 108
100 Bemidji Beltrami 094	107 International Falls Koochiching 101	333 St. Cloud Stearns 089
101 Brainerd Crow Wing 095	108 Mankato Blue Earth 102	115 St. Paul Ramsey 109
102 Crookston Polk 096	109 Marshall Lyon 103	116 Stillwater Washington 110
103 Duluth St. Louis 100	110 Minneapolis Hennepin 104	117 Virginia St. Louis 100
097 Fairmont Martin 091	111 New Ulm Brown 105	118 Willmar Kandiyohi 111
104 Faribault Rice 098	112 Owatonna Steele 106	096 Winona Winona 090

## OHIO

119 Akron Summit 113	145 Fairborn Greene 135	171 Newark Licking 158
129 Alliance Stark 121	146 Findlay Hancock 136	172 Niles Trumbull 159
130 Ashland Athens 122	147 Fostoria Seneca 137	173 Norwalk Huron 160



## OHIO, cont'd

348 Ashtabula	148 Fremont	174 Piqua
Ashtabula 129	Sandusky 138	Miami 161
120 Athens	149 Galion	175 Pomeroy
Athens 122	Crawford 139	Meigs 162
176 Beaver Creek	150 Gallipolis	176 Port Clinton
Greene 135	Gallia 140	Ottawa 163
121 Bellefontane	151 Greenfield	177 Portsmouth
Logan 296	Highland 141	Scioto 164
350 Bellevue	152 Greenville	179 Salem
Huron 160	Darke 142	Columbiana 133
351 Bowling Green	153 Hamilton	180 Sandusky
Wood 297	Butler 143	Erie 166
352 Bryan	154 Ironton	181 Shelby
Williams 298	Lawrence 144	Richland 150
353 Bucyrus	155 Kent	182 Sidney
Crawford 299	Portage 145	Shelby 168
354 Cambridge	156 Kenton	183 Springfield
Guernsey 300	Hardin 146	Clark 169
131 Canton	157 Lancaster	178 St. Marys
Stark 121	Fairfield 147	Auglaize 120
122 Celina	125 Lima	184 Steubenville
Mercer 114	Allen 117	Jefferson 170
132 Chardon	158 Lisbon	185 Tiffin
Geauga 123	Columbiana 133	Seneca 137
133 Chillicothe	159 Logan	186 Toledo
Ross 124	Hocking 149	Lucas 171
134 Cincinnati	126 London	187 Troy
Hamilton 125	Madison 118	Miami 161
135 Circleville	160 Lorain	188 Upper Sandusky
Pickaway 126	Lorain 134	Wyandot 172
136 Cleveland	161 Mansfield	127 Urbana
Cuyahoga 127	Richland 150	Champaign 119
137 Columbus	162 Marietta	189 Van Wert
Franklin 128	Washington 151	Van Wert 173
138 Conneaut	163 Marion	128 Wapakoneta
Ashtabula 129	Marion 152	Auglaize 120
123 Coshocton	164 Martins Ferry	190 Warren
Coshocton 115	Belmont 153	Trumbull 159
139 Dayton	165 Marysville	193 Washington
Montgomery 130	Union 154	Fayette 176
124 Defiance	166 Massillon	334 Willoughby
Defiance 116	Stark 121	Lake 112
140 Delaware	167 Medina	191 Wilmington
Delaware 131	Medina 155	Clinton 174
141 Delphos	168 Middleton	192 Wooster
Allen 132	Butler 143	Wayne 175
143 East Liverpool	169 Mount Vernon	194 Xenia
Columbiana 133	Knox 156	Greene 135
144 Elyria	170 Napoleon	195 Youngstown
Lorain 134	Henry 157	Mahoning 177

## OHIO, cont'd

142 New Philadelphia  
Tuscarawas 309

196 Zanesville  
Muskingum 178

## WISCONSIN

321 Antigo  
Langlade 274  
322 Appleton  
Outagamie 275  
304 Ashland  
Ashland 400  
300 Baraboo  
Sauk 258  
336 Beaver Dam  
Dodge 262  
305 Beloit  
Rock 263  
323 Chippewa Falls  
Chippewa 276  
306 Eau Claire  
Eau Claire 264  
311 Fond du Lac  
Fond du Lac 913  
310 Fort Atkinson  
Jefferson 910  
303 Green Bay  
Brown 261

324 Janesville  
Rock 263  
325 Kenosha  
Kenosha 277  
317 La Crosse  
La Crosse 270  
302 Madison  
Dane 260  
326 Manitowoc  
Manitowoc 278  
312 Marinette  
Marinette 915  
313 Marshfield  
Wood 259  
327 Milwaukee  
Milwaukee 279  
328 Monroe  
Green 280  
320 Oshkosh  
Winnebago 273  
318 Portage  
Columbia 271

319 Racine  
Racine 272  
314 Rhinelander  
Oneida 267  
315 Shawano  
Shawano 268  
329 Sheboygan  
Sheboygan 281  
307 Stevens Point  
Portage 265  
308 Superior  
Douglas 266  
309 Watertown  
Dodge 262  
316 Waukesha  
Waukesha 269  
330 Wausau  
Marathon 282  
331 West Bend  
Washington 283  
301 Wisconsin Rapids  
Wood 259

## SECTION CB: DAILY NEWSPAPER CODES

IOWA

Code	Community and Newspaper
9	Ames Tribune
10	Atlantic News Telegraph
1	Boone News Republic
2	Burlington Hawk Eye
3	Carrol Times Herald
4	Cedar Rapids Gazette
5	Centerville Iowegian
6	Charles City Press
35	Cherokee Daily Times
7	Clinton Herald
8	Council Bluffs Nonpareil
11	Creston News Advertiser
12	Davenport Quad City Times
13	Des Moines Register
33	Dubuque Telegraph Herald
14	Estherville News
15	Fairfield Ledger
16	Fort Dodge Messenger
17	Fort Madison Democrat
18	Iowa City Press Citizen
19	Keokuk Gate City
20	Le Mars Sentinel
21	Marshalltown Times Republican
22	Mason City Globe Gazette
23	Mount Pleasant News
24	Muscatine Journal
25	Newton News
26	Oelwein Register
27	Oskaloosa Herald
28	Ottumwa Courier
29	Shenandoah Sentinel
34	Sioux City Journal
30	Spencer Daily Reporter
345	Vinton Cedar Valley Daily Times
346	Washington Evening Journal
31	Waterloo Courier
32	Webster City Freeman Journal

ILLINOIS

Code	Community and Newspaper
215	Alton Telegraph
216	Aurora Beacon News
217	Beardstown Illinoisan Star
214	Belleville News Democrat
218	Belvedere Republican
219	Benton News

ILLINOIS, cont'd

Code	Community and Newspaper
208	Bloomington Pantagraph
220	Carleton Ledger
221	Carbondale Southern Illinoisian
222	Carmi Times
223	Centralia Sentinel
224	Champaign News Gazette
225	Charleston Times Courier
207	Chicago Defender
206	Chicago Herald
203	Chicago Southtown Economist
205	Chicago Sun Times
204	Chicago Tribune
226	Clinton Journal
210	Crystal Lake Northwest Herald
227	Danville Commerical News
229	DeKalb Chronicle
228	Decatur Herald Review
209	Dixon Telegraph
230	DuQuoin Call
231	Edwardsville Intelligencer
232	Effingham News
233	Eldorado Journal
234	Elgin Courier News
235	Flora Clay County Advocate
236	Freeport Journal Standard
212	Galesburg Register Mail
237	Harrisonburg Register
238	Jacksonville Journal Courier
211	Joliet Herald News
239	Kankakee Journal
240	Kewanee Star Courier
241	LaSalle News Tribune
242	Lawrenceville Record
243	Libertyville Southwest News Sun
363	Lincoln Courier
370	Litchfield News Herald
371	Macomb Journal
372	Marion Daily Republican
373	Mattoon Journal Gazette
382	Monmouth Review Atlas
374	Morris Herald
375	Mount Carmel Republican Register
376	Olney Daily Mail
377	Ottawa Daily Times
244	Paris Beacon News
245	Paxton Record
246	Pekin Times
247	Peoria Journal Star
248	Pontiac Leader
249	Quincy Herald Whig
250	Robinson News

ILLINOIS, cont'd

Code	Community and Newspaper
251	Rock Island Argus
252	Rockford Register Star
253	Shelbyville Union
254	Springfield State Journal
255	Sterling Gazette News
256	Streator Times Press
213	Taylorville Breeze Courier
257	Watseka Times Republic
258	Waukegan News Sun
259	West Frankfort American
260	Wheaton Journal

INDIANA

Code	Community and Newspaper
347	Anderson Herald Bulletin
348	Auburn Evening Star
73	Bedford Times Mail
74	Bicknell Knox County News
349	Bicknell Morning News Report
58	Bloomfield World
59	Bloomington Herald Times
60	Bluffton News Banner
61	Brazil Times
62	Chesterton Tribune
79	Clifton News Banner
70	Clinton Daily Clintonian
71	Columbia City Post Mail
63	Columbus The Republican
64	Connorsville News Examiner
65	Crawfordsville Journal Review
80	Decatur Daily Democrat
36	Elkhart Truth
37	Elwood Call Leader
38	Evansville Courier
350	Evansville Press
351	Fort Wayne Journal Gazette
69	Fort Wayne News Sentinel
78	Frankfort Times
39	Franklin Journal
91	Gary Post Tribune
40	Goshen News
42	Greencastle Banner Graphic
41	Greenfield Daily Reporter
82	Greensburg Daily News
90	Hammond Times
43	Hartford City News Times
44	Huntington Herald Press
358	Indianapolis News
93	Indianapolis Star

INDIANA, cont'd

Code	Community and Newspaper
95	Jasper Herald
45	Jeffersonville News
46	Kendallville News Sun
83	Kokomo Tribune
66	La Porte Herald Argus
47	Lafayette Journal Courier
48	Lebanon Reporter
49	Linton Citizen
50	Logansport Pharos Tribune
51	Madison Courier
353	Marinsville Daily Reporter
352	Marion Chronicle Tribune
76	Michigan City New Dispatch
354	Monticello Herald Journal
355	Muncie Star & Evening Press
356	New Albany Ledger Tribune
357	New Castle Courier Times
81	Noblesville Daily Ledger
52	Peru Tribune
96	Plymouth Pilot news
53	Portland Commercial Review
67	Princeton Daily Clarion
54	Rensselaer Republican
77	Richmond Palladium Item
75	Rochester Sentinel
55	Rushville Republican
68	Seymour Daily Tribune
56	Shelbyville News
92	South Bend Tribune
57	Spencer World
94	Sullivan Daily Times
72	TerreHaute Tribune Star
359	Tipton County Tribune
84	Valparaiso Vidette Messenger
85	Vincennes Sun Commerical
86	Wabash Plain Dealer
87	Warsaw Times Union
88	Washington Times Herald
89	Winchester News Gazette

MICHIGAN

Code	Community and Newspaper
276	Adrian Telegram
277	Albion Record
272	Alpena News
273	Ann Arbor News
278	Bad Axe Daily Tribune
275	Battle Creek Enquirer
262	Bay City Times

MICHIGAN, cont'd

Code	Community and Newspaper
279	Benton Harbour Herald Palladium
280	Big Rapids Pioneer
281	Cadillac News
282	Cheboygan Tribune
283	Coldwater Reporter
261	Detroit Free Press
378	Detroit News
284	Dowagiac News
285	Escanaba Press
286	Flint Journal
287	Grand Haven Tribune
288	Grand Rapids Press
289	Greenville Daily News
290	Hillsdale News
263	Holland Sentinel
264	Houghton Daily Mining Gazette
265	Ionia Sentinel Standard
291	Iron Mountain News
292	Ironwood Globe
266	Jackson Citizen Patriot
293	Kalamazoo Gazette
294	Lansing State Journal
295	Ludington News
296	Manistee News Advocate
297	Marquette Mining Journal
298	Marshall Chronicle
299	Menominee Herald Leader
300	Midland Daily News
301	Monroe News
302	Mount Pleasant Sun
274	Mt. Clemens Macomb Daily
267	Muskegon Chronicle
303	Niles Star
304	Owosso Argus Press
305	Petoskey News Review
268	Pontiac Oakland Press
269	Port Huron Times Herald
306	Royal Oak Tribune
307	Saginaw News
308	Sault St. Marie News
309	South Haven Daily
270	Sturgis Journal
310	Three Rivers Commercial News
271	Traverse City Record Eagle
311	Ypsilanti Press

MINNESOTA

## Code Community and Newspaper

100 Albert Lea Tribune  
 101 Austin Herald  
 102 Bemidji Pioneer  
 103 Brainerd Dispatch  
 104 Crookston Times  
 106 Duluth News Tribune  
 99 Fairmont Sentinel  
 107 Faribault News  
 108 Fergus Falls Journal  
 109 Hibbing Tribune  
 110 International Falls Journal  
 111 Mankato Free Press  
 112 Marshall Independent  
 113 Minneapolis Star Tribune  
 114 New Ulm Journal  
 115 Owatonna People Press  
 116 Red Wing Republican Eagle  
 117 Rochester Post Tribune  
 97 St. Cloud Times  
 118 St. Paul Pioneer Press  
 119 Stillwater Gazette  
 120 Virginia Mesabi News  
 121 Willmar West Central Tribune  
 98 Winona Daily News

OHIO

## Code Community and Newspaper

123 Akron Beacon Journal  
 133 Alliance Review  
 134 Ashland  
 366 Ashtabula Star Banner  
 124 Athens Messenger  
 360 Beaver Creek Daily News  
 125 Bellefontaine Examiner  
 361 Bellevue Gazette  
 362 Bowling Green Sentinel Tribune  
 383 Bryan Times  
 364 Bucyrus Telegraph Forum  
 365 Cambridge Daily Jeffersonian  
 135 Canton Repository  
 126 Celina Standard  
 136 Chardon Geauga Times Leader  
 137 Chillicothe Gazette  
 138 Cincinnati Enquirer  
 368 Cincinnati Post  
 139 Circleville Herald  
 140 Cleveland Plain Dealer  
 141 Columbus Dispatch  
 142 Conneaut News Herald



OHIO, cont'd

Code	Community and Newspaper
127	Coshocton Tribune
143	Dayton News
128	Defiance Crescent News
144	Delaware Gazette
145	Delphos Herald
147	East Liverpool Review
148	Elyria Chronicle Telegram
149	Fairborn Herald
150	Findlay Courier
151	Fostoria Review Times
154	Gallipolis Tribune
155	Greenfield Times
156	Greenville Advocate
157	Hamilton Journal News
158	Ironton Tribune
160	Kent Record Courier
161	Keton News
162	Lancaster Eagle Gazette
129	Lima News
163	Lisbon Morning Journal
164	Logan News
130	London Maison Press
165	Lorain Journal
166	Mansfield News Journal
167	Marietta Times
168	Marion Star
169	Martins Ferry Times Leader
170	Marysville Journal Tribune
171	Massillon Independent
172	Medina County Gazette
173	Middletown Journal
174	Mount Vernon News
175	Napoleon Northwest Signal
146	New Philadelphia Times Reporter
176	Newark Advocate
177	Niles Times
178	Norwalk Reflector
179	Piqua Call
180	Pomeroy Sentinel
181	Port Clinton News Herald
182	Portsmouth Times
184	Salem News
185	Sandusky Register
187	Shelby Glove
188	Sidney News
189	Springfield News Sun
183	St. Marys Leader
190	Steubenville Herald Star
191	Tiffin Advertiser Tribune
192	Toledo Blade
193	Troy News

OHIO, cont'd

Code Community and Newspaper

194 Upper Sandusky Chief Union  
 131 Urbana Daily Citizen  
 195 Van Wert Times Bulliten  
 132 Wapakoneta Daily News  
 196 Warren Tribune Chronicle  
 199 Washington Record Herald  
 122 Willoughby News Herald  
 197 Wilmington News Journal  
 198 Wooster Record  
 200 Xenia Gazette  
 201 Youngstown Vindicator  
 202 Zanesville Times Recorder

WISCONSIN

Code Community and Newspaper

332 Antigo Journal  
 333 Appleton Post Crescent  
 312 Ashland Daily Press  
 313 Baraboo News Republic  
 379 Beaver Dam Daily Citizen  
 314 Beloit Daily News  
 334 Chippewa Falls Herald Telegram  
 315 Eau Claire Leader Telegram  
 317 Fond du Lac Reporter  
 316 Fort Atkinson Daily Jefferson County Union  
 380 Green Bay News Chronicle  
 381 Green Bay Press Gazette  
 335 Janesville Gazette  
 336 Kenosha News  
 318 La Crosse Tribune  
 337 Madison Capital Times  
 331 Madison Wisconsin State Journal  
 338 Manitowoc Herald Times Reporter  
 319 Marinette Eagle Star  
 320 Marshfield News Herald  
 340 Milwaukee Journal  
 339 Milwaukee Sentinel  
 341 Monroe Times  
 321 Oshkosh Northwestern  
 322 Portage Daily Register  
 323 Racine Journal Times  
 324 Rhinelander Daily News  
 325 Shawano Leader  
 342 Sheboygan Press  
 326 Stevens Point Journal  
 327 Superior Evening Telegram  
 328 Watertown Daily Times  
 329 Waukesha County Freeman  
 343 Wausau Herald  
 344 West Bend News  
 330 Wisconsin Rapids Daily Tribune

SECTION CC: RISK SIGNALS

RISK SIGNALS are words or phrases that indicate some danger is present, even if that danger is not a main point of the item or its frame. Examples of words that are risk signals are the following and any close synonyms used in the context of human health:

communicable	noxious
contagious	perilous
contaminated	
danger	poisonous
deadly	risky
epidemic	threat
fear	
harmful	toxic
hazardous	unsafe
ill-effects	virulent
infectious	warning
miasmatic	worry

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