

**Toxic Transportation Spills:
Invisible or Ignored?**

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ABSTRACT

The current study, a national survey of journalists and transportation officials, explores why the most serious commercial transportation spills are rarely communicated to the public, identifies communication gaps in the cleanup/mitigation process, and solicits stakeholder recommendations for improving the transportation industry and public safety.

These confidential surveys explored whether, why and how serious transportation spills are communicated to the public. One version of the survey was sent to journalists, and the other version of the survey was sent to at least one transportation official from each of the 50 state DOT offices. The journalists survey invited reporters who wrote about 51 serious spill accidents that did receive media coverage over a decade, as well as environmental and science reporters from across the U.S.

The survey questions examined key findings of a previous media analysis project that included a systematic national content analysis of stories covering 5,555 serious freight spills, as well as an analysis of the social media presence of freight companies. The earlier study found that 97% of serious freight spills over a decade received no media attention. Thus, the underlying question of the follow-up study, the two national surveys, was: Why do most serious freight spills never receive media coverage?

The surveys identified gaps and challenges in public communication about serious freight spills and informed recommendations for both the transportation and media industries. The findings highlighted challenges in news routines and reporting strategies used in coverage of serious freight accidents, as well as significant gaps in official communications about these spills.

Both journalists and officials agreed that the media generally does a poor job of covering spill preparedness, and nearly all of the officials felt that most journalists lack adequate knowledge about freight spills. Even so, the officials viewed overall media coverage of freight spills more favorably than the journalists did. Both groups admitted that reporters are often forced to file FOIA requests in order to gather details about spills.

Surprisingly, the transportation officials reported that their agencies use social media more heavily than the journalists' media organizations. The officials also were more optimistic than journalists about how easily reporters can obtain timely information about freight spills. For instance, reporters were nearly twice as likely as officials to say that reporters are blocked from getting eyewitness interviews or that radio stations broadcast information about hazardous spills.

Journalists were more likely than officials to argue that freight transport should travel through rural, remote areas away from population centers. Officials were more likely to prefer that freight trucks and trains travel in or near urban areas where more communication channels are available to alert people about hazards and where hazmat responders can respond more quickly.

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INTRODUCTION

The risk of transportation-related toxic spills increases the challenges and potential costs of operating the intermodal network of highways, rails, waterways, airports, and shipping terminals in the U.S. These risks are exacerbated by traffic congestion and aging infrastructure, ultimately jeopardizing American competitiveness in the global economy. In the 10-year period between 2003 and 2012, there were 161,079 hazardous waste transport incidents in the U.S., totaling more than \$701 billion in cleanup/mitigation costs (Pipeline and Hazardous Materials Safety Administration, 2013).

This exploratory research project serves as a follow-up study for a previous NCITEC project. The content analysis portion of that study vetted 5,555 U.S. serious transportation spills in a decade. It revealed that only 3% of the accidents were communicated to the public through social media or news media. This unexpected finding requires explanation and further exploration. The earlier project systematically analyzed the social media presence and online influence of 2,782 transportation companies and U.S. newspaper coverage of all 5,555 spills. Most companies had no social media presence; no company communicated directly about any spill.

The current study, a national survey of journalists and transportation officials, explores why the most serious commercial transportation spills are rarely communicated to the public, identifies communication gaps in the cleanup/mitigation process, and solicits stakeholder recommendations for improving the transportation industry and public safety.

This project seeks to advance several DOT goals, including the assessment needed to improve intermodal safety of passenger and freight transportation systems. It also supports two of DOT's other strategic goals: livable communities and environmental sustainability. Through exposing weaknesses and opportunities in the post-accident communications system, this survey project addresses emergency preparedness, emergency evacuation planning and operations, system performance and reliability. It also identified communication strategies that could help to protect intermodal transport infrastructure assets from disasters and liability.

OBJECTIVE

Two national surveys examined key findings of a previous media analysis project that included a systematic national content analysis of stories covering 5,555 serious freight spills, as well as an analysis of the social media presence of freight companies. The earlier study found that 97% of serious freight spills over a decade received no media attention.

Thus, the underlying question of the follow-up study, the two national surveys, was: Why do most serious freight spills never receive media coverage?

The confidential surveys of state DOT officials and news reporters examined public communication about serious freight spills. They also informed recommendations for the transportation and media industries.

SCOPE

This study explores how freight train and truck companies publicly responded to serious hazardous spills through national surveys of journalists and transportation officials. DOT categorizes spills as “serious” based on costs, amount of toxic releases, fatalities, injuries, environmental damage and other severe health impacts.

Most journalists who responded to the survey invitation had personal experience in covering freight spills. Similarly, most of the transportation officials had experience with spills, as well as experience in communicating about transportation accidents to the public.

Rich data was provided in detailed commentary from the journalists and officials in the national surveys and from freight truck operators via an online forum. Although the final sample sizes were not large, most respondents were credible and authoritative and provided useful, informed feedback.

METHODOLOGY

This national survey of journalists and transportation officials explored whether, why and how serious transportation spills are communicated to the public.

One version of the survey was sent to journalists, and the other version of the survey was sent to at least one transportation official from each of the 50 state DOT offices. The journalists survey invited reporters who wrote about 51 serious spill accidents that did receive media coverage, as well as other reporters from across the U.S.

The survey invitation for journalists was shared via Society of Environmental Journalists, National Association of Science Writers, and Society of Environmental Journalists listservs. The survey invitation for transportation officials was sent to individual officials identified through a national listing of state DOT offices. It also was sent to representatives of major transportation companies that have dealt with serious freight accidents in the past.

Questions for reporters explored journalistic routines, including application of traditional news values and routines in coverage of spills, sources of information, and routine access to authoritative interview sources. They also were asked questions to assess the perceived risk of various spills, and in which situations they seek quotes about blame. It also explored whether they were more likely to cover spills with a strong visual element and whether they would be more likely to cover toxic spills characterized by factors that amplify public fear, including industrial risk, potentially fatal outcomes, invisible risk such as a gas leak, or involuntary exposure.

Both surveys explored additional questions raised by the earlier content analysis study. These questions included why transportation companies with a higher social media presence were involved in the most damaging and expensive accidents, why serious spills are so rarely covered in news reports, and why spills in certain threat categories tend to be invisible such as those involving water contamination, environmental damage, road closures, fires and explosions, human impacts (fatalities, evacuations and injuries), and high-threat substances such as radioactive materials, mass explosion hazards, and poisonous gas.

The surveys, which utilized Qualtrics survey software, were designed to require 15 minutes or less to complete. The questions included multiple-choice, Likert scales, hypotheticals, demographics and other respondent characteristics. All responses were recorded in a downloadable Qualtrics spreadsheet.

A reminder email was sent to subjects during the one-month survey period, which included a slight deadline extension due to a holiday near the end of the survey period. The total number of responses was 81; the journalism survey received 40 responses from professional reporters, and the other survey received 41 responses from transportation officials. The data was downloaded from Qualtrics, cleaned, and analyzed using qualitative theme analysis and SPSS statistical software.

DISCUSSION OF RESULTS

Respondent characteristics. The journalists in the survey sample (N=40) included traditional news reporters, investigative reporters, television news anchors, copy editors, magazine editors, press officers for government regulatory agencies and universities, and former journalists. A quarter (25%) worked for online-only publications such as social media sites or blogs. Most journalists were over 30; 56.3% were 30-49, and another 37.5% were 50 or older. Most were male (62.5%), similar to the proportion of males working as reporters in U.S. (62.2% in 2013). The average number of years the transportation officials had worked in their current organization was 11.4 years. Most are 50 or older (69.1%), followed by 30-49 years old (27.3%). None were younger than 30. There was an equal number of men and women participating in the officials’ survey.

All respondents in the transportation officials survey said their job involves communicating with the public in some capacity, mostly as public affairs or communications managers. Most officials (54.6%) work for state departments of transportation, followed by state emergency management and regulatory agencies (27.3%), federal agencies (9.1%) and freight train companies (9.1%). The officials felt that reporters should always interview transportation company representatives and emergency response (fire/police) officials (100%), followed by state transportation officials (91.7%), witnesses or victims (75%), truck/train operators involved in the accident (66.7%), and local elected officials (33.3%).

Several transportation officials said their agencies do not directly notify the public about spills, but they do inform emergency services and/or the state department of natural resources. The agencies that do inform the public about spills frequently issue news releases, social media posts (especially Twitter and Facebook), alerts via a state 511 travel information system, posts on state highway notification websites, posts on temporary or permanent electronic message boards, and emails to media organizations and transportation partners.

Preparedness and personal experience. Transportation officials (N=41) and reporters generally agreed about the importance of spill preparedness, although the officials placed higher importance on preparedness for train and truck spills than for watercraft and aircraft spills (Table 1).

TABLE 1: Perceived importance of spill preparedness: Reporters vs. transportation officials
(1=strongly disagree; 4=strongly agree)

	Reporters	Transp	Diff
Disaster preparedness for hazardous spills caused by train derailments.	3.72	3.85	-0.13
Disaster preparedness for toxic or explosive gas leaks caused by train derailments.	3.72	3.85	-0.13
Disaster preparedness for hazardous spills caused by freight truck accidents.	3.78	4.00	-0.22
Disaster preparedness for toxic/explosive gas leaks caused by freight truck accidents.	3.61	4.00	-0.39*
Disaster preparedness for hazardous spills from watercraft.	3.39	3.08	0.31
Disaster preparedness for hazardous spills from aircraft.	3.56	3.38	0.18
	N=40	N=41	N=81

Surprisingly, the journalists claimed to have twice as much spill experience as the transportation officials. More than half (60%) of the journalists said they had reported on at least one transportation spill previously, as compared with only 26.8% of the transportation officials. Among those who had covered spills, the average number of stories was 13.

The average number of spills the officials had communicated about was only 1.8. Over half the journalists with spill experience (53.3%) had covered truck spills, 40% covered train spills, 20% covered watercraft spills, 13.3% covered aircraft spills, and 13.3% had covered other transportation spills including car and pipeline leaks. Similarly, 63.6% of the officials with spill experience had dealt with truck spills, 45.5% had dealt with train spills, 9.1% had dealt with watercraft spills, and none had encountered aircraft spills.

Journalists who had covered spills said the most common accident was an explosive or flammable spill (42.9%), followed by poisonous chemical spills or poisonous gas leaks (35.7%), corrosive material spills (35.7%), oxidizing agent spills (21.4%), and other spills (29.6%) including nuclear waste, bees, and pesticides. All of the transportation officials with spill experience had dealt with explosive or flammable spills. Other common spills they had encountered included corrosive materials (54.6%), poisonous chemical or gas (36.4%), and oxidizing agents (18.2%).

When asked, “How far from your workplace is the nearest active railroad?” 57.9% of reporters said less than 1 mile, while 46.2% of transportation officials worked within a mile of a railroad. An additional 26.3% of the reporters worked 1-4 miles from a railroad, which means 84.2% work within 5 miles of a railway (compared to 77.0% of transportation officials).

When asked, “How far from your workplace is the nearest interstate or major highway?” 52.6% of reporters said less than 1 mile, while 38.5% of transportation officials worked within a mile of a major highway. An additional 36.8% of the reporters worked 1-4 miles from a major highway, which means 89.4% work within 5 miles of a major highway (compared to 76.9% of transportation officials).

Overall, more reporters work near a major highway than near a railroad, and more reporters work near railways and major roads than do transportation officials. This data also indicates that almost 90% of reporters work in communities that are at risk of a hazardous transportation spill.

When asked, “Do you know of any train derailments in or near your community in the last 10 years?” nearly half (47.4%) of the reporters knew of at least one local derailment, compared to 61.5% of transportation officials. An additional 10.5% of the reporters knew of a high number of local derailments (5 or more), compared to 7.7% of transportation officials. When asked, “Are you aware of any major freight truck spills on roads in or near your community in the last 10 years?” 57.9% of the reporters knew of at least one such spill, compared with 91.7% of the transportation officials.

An additional 26.3% of the reporters knew of a high number of local truck spills (5 or more), compared to 50.0% of transportation officials. Overall, a large proportion of reporters and transportation officials were aware of recent local derailments and truck spills, but significantly more transportation officials than reporters were aware of at least one local train derailment or truck spill.

Media criticism. Transportation officials viewed media coverage of spills in a much more favorable light than the journalists did. When asked to rate past media coverage of hazardous transportation spills, 44.5% of journalists rated the overall coverage as good or excellent, compared with 76.9% of the officials; meanwhile, 16.7% of journalists rated the coverage as poor vs. none of the officials. Only 23.5% of reporters rated the media coverage as thorough vs. 53.8% of the officials. On the other hand, 17.7% of journalists rated the news thoroughness as poor, compared with 7.7% of the officials. A third of the journalists felt the media does a good or excellent job of conveying spill risks such as chemical exposure vs. 61.5% of the officials. Another third of the journalists felt the media does a poor job of conveying spill risks vs. none of the officials.

One area of concern among transportation officials was media coverage of preparedness. More than a quarter (27.8%) of the journalists said the media does a good or excellent job of covering spill preparedness, compared with only 15.4% of the officials. Similarly, 75% of the reporters said the media does a poor or marginal job of covering spill preparedness vs. 84.6% of the officials.

Thinking back to the most recent hazardous spill in their area, journalists said the most common impacts (multiple responses) were chemicals seeping into the ground or water (35.7%), extensive property or vehicle damage (35.7%), injuries (28.6%), or fires/explosions (28.6%). They said the most common risks were fire (35.7%) and exposure or injury to civilians (42.9%).

The least common impacts were death (14.3%) and evacuation (7.1%). By comparison, the officials said the most common impacts were fires/explosions (50%), people exposed to risk of exposure or injury (50%), chemicals seeping into the ground or water (41.7%), injuries (41.7%), evacuations (33.3%), extensive property damage or vehicle damage (33.3%), and the risk of fire (16.7%). None of the transportation officials said the release of poisonous gas was a common impact, compared with 21.4% of the journalists. None of the journalists or officials identified fatalities as a common impact.

TABLE 2: Reporters vs. transportation officials' agreement with hazardous spill preparedness and response statements
(1=strongly disagree; 4=strongly agree)

Preparedness and Response Statements	Reporters	Transp officials	Diff
My community is well prepared to deal with a hazardous spill.	2.95	3.67	-0.72
Freight trains and trucks carrying hazardous chemicals should not be driven.	2.60	2.53	0.07
Freight lines carrying hazardous chemicals should travel in or near urban areas where rescue services are available and equipped to handle spills.	3.15	2.87	0.28
Freight lines carrying toxic chemicals should travel through remote areas where fewer people live.	3.05	2.67	0.38
Freight lines carrying hazardous chemicals should travel in or near urban areas where more communication channels are available to alert and inform people about the hazards of a spill.	3.00	2.87	0.13
In the event of a hazardous spill in the area, radio warnings about the accident should override regular programming, as they do in cases of tornadoes and other national disasters.	3.50	3.67	-0.17
Newsrooms usually assign a reporter or photographer to cover freight spills in my area.	3.25	2.87	0.38
Reporters usually continue to track environmental impacts after a spill has been cleaned up.	2.45	2.67	-0.22
Reporters are often forced to file FOIA requests to gather details about hazardous spills.	3.70	3.53	0.17
	N=40	N=41	N=8

* Significant difference, $p < .05$

Journalists said two-thirds of spills they covered in the past did place residents or motorists at risk – 45% said the spills posed slight risk vs. 22% moderate or serious danger; 22% of the spills were considered safe, but for 11% of the spills the risk was unknown. Similarly, the transportation officials said 54.6% of the spills posed a slight risk, 9.1% posed moderate or serious danger, 18.2% were considered safe, and 18.2% posed an unknown level of risk.

Journalists said that among the most serious spills they had covered, the hazmat workers faced much greater health risks – 45% said the risk to hazmat workers was moderate or serious, 23% said the risk was slight, and another 23% said the risk was unknown. Half the officials said everyone at a spill site is always required to wear protective gear, and the other half said gear is sometimes required.

Most of the media organizations the journalists worked for have a social media presence: Facebook (85.7%), websites (85.7%), Twitter (78.6%), blogs (21.4%), YouTube (14.3%), LinkedIn (14.3%) and other sites (14.3%). Surprisingly, the transportation agencies have more heavy social media use than the media organizations: Facebook (100%), followed by Twitter (92.3%), YouTube (76.9%), websites (76.9%), blogs (46.2%), LinkedIn (23.1%), and other social media sites (15.4%) including Flickr, Instagram, Periscope, and Vimeo.

Most reporters said it is “very likely” they would report on a toxic leak or spill on a major highway or a spill that requires an evacuation (66.7%), that occurs near a residential area (68.8%), that causes a significant traffic delay (66.7%), that occurs during peak traffic (66.7%), or that has a noxious odor (56.3%).

They said it was “very unlikely” or “somewhat unlikely” that they would report on hazardous spills cleaned up quickly and require no medical attention or evacuations (50%), spills that are declared non-toxic (43.8%), freight truck spills in rural areas (40%), and spills that cause brief traffic delays (33.3%), and train derailments in rural areas (25%).

Most officials said it is “very likely” they would communicate with the public about a freight truck spill on a highway during peak traffic (63.6%), a hazardous leak or spill from a freight truck/train that delays traffic (58.3%), a toxic leak/spill on a major highway (54.6%), a train spill near a highway or residential area (50%), a truck or train spill requiring evacuation (50%), or a train spill in a remote area (36.4%).

Meanwhile, officials were “very unlikely” or “somewhat unlikely” to communicate with the public about a non-toxic gas leak from a truck or train (50%), a hazardous spill cleaned up quickly that causes no injuries or evacuations (50%), a potentially flammable freight spill (41.7%), a hazardous gas leak from a freight truck/train that has a noxious odor (33.3%), and a hazardous spill from a derailment that occurs in a rural/remote area (25%).

In the aftermath of a hazardous spill, most reporters said it was somewhat or very likely that their organization would cover spills that caused injuries (100%), potentially long-term environmental damage (93.3%), fatalities (92.9%), gas leaks (92.9%), fires/explosions (92.9%), water contamination (86.7%), and road closures/long traffic delays (64.3%).

Similarly, most transportation officials said it was somewhat or very likely that their organization would communicate about fatalities (75%), fire/explosion (75%), evacuations (75%), injuries (66.7%), gas leak (66.7%), road closure (61.5%), potentially long-term environmental damage (58.3%), and long traffic delays (53.9%), and water contamination (45.5%).

A third of the officials said it was “very unlikely” they would communicate about potentially long-term environmental damage from a spill.

TABLE 3: News coverage evaluation by reporters and transportation officials
(1=strongly disagree; 4=strongly agree)

	Reporters	Transp	Diff
Hazardous freight truck/train spills are effectively covered in the media.	2.13	3.00	-0.87*
Reporters can easily obtain timely reports about hazardous spills from law enforcement or other emergency response agencies.	2.19	3.33	-1.14*
Reporters usually learn about hazardous spills from a police scanner.	2.58	3.40	-0.82*
Reporters usually learn about hazardous spills before the cleanup is done.	3.19	3.56	-0.37*
Reporters can usually obtain photos or video of a spill while crews are on site.	2.53	2.90	-0.37*
Transportation companies involved often get blamed for spills.	2.94	3.50	-0.56*
Transportation companies involved in a spill usually assume some responsibility.	2.36	3.44	-1.08*
Reporters are often prevented from interviewing eyewitnesses after a spill.	2.45	1.83	0.62*
Reporters should fully identify all interview sources in a spill story.	3.41	3.58	-0.17
Local radio stations in my area provided info about hazardous spills in the past.	2.70	3.69	-0.99*
Local TV stations have reported hazardous spills in the past.	3.22	3.85	-0.63*
Local newspapers have reported hazardous spills in the past.	3.29	3.85	-0.56*
	N=40	N=41	N=81

* Significant difference, p<.05

Reporters said they were very likely to report on efforts to rebuild or repair a damaged community (70%), the immediate aftermath of the accident (66.7%), and mobilization of services to help victims (66.7%) than to report on blame or accident causes (which 13.3% said are very unlikely to be reported). Reporters said they were also somewhat or very likely to investigate any preventable spill causes (86.6%), to report on accident trends or patterns in the area (85.7%), and to acknowledge if the spill was the first, worst, or biggest in the area (80%).

Officials said they were “very likely” or “somewhat likely” to communicate about the immediate aftermath of a serious spill (91.7%), followed by their organization’s attempts to reduce the negative impacts of a spill (72.7%), any preventable cause of a spill such as lack of maintenance (72.7%), mobilization of services to help victims (58.3%), their organization’s risk management plan for handling or preventing spills (54.5%), efforts to rebuild or repair a damaged community (54.5%), or whether a spill was part of a pattern of similar accidents (50%). On the other hand, officials were “very unlikely” to assign responsibility for injury or death (91.7%), assign responsibility to a transportation company in causing or contributing to a spill (58.3%), or to acknowledge whether a spill was the first, worst, or biggest in the area (50%).

The journalists unanimously agreed that journalists who cover these accidents should immediately report to the public how much was spilled, and they were in nearly unanimous agreement (93.8%) that journalists should immediately report the potential health or environmental hazards. Similarly, 87.5% agreed that journalists should immediately report what was spilled or leaked, as well as the specific potential side effects of exposure. Three-quarters (75%) trust experts to make accurate estimates of health risks from freight spills.

The journalists also felt that journalists covering spills should report on the possibility of future hazardous spills in their communities (87.5%), as well as whether their communities have a preparedness plan for spills (87.5%).

Three-quarters of the journalists (75%) felt that journalists should visit and document accident scenes immediately, that most reporters lack the basic knowledge needed to cover spills, and that transportation companies should take more steps to prevent spills. Similarly, 68.8% felt the federal government should take more steps to prevent spills. Thus, the journalists assigned more responsibility for prevention to freight companies than the government. Even so, most of the journalists (56.3%) do not believe a freight spill will happen in their area within a year.

Transportation officials were more ambivalent about how journalists should cover spills. Most (90.9%) feel that journalists lack adequate knowledge about transportation spills. Most strongly agreed that journalists report specific potential side effects of chemical exposure from a spill (63.6%). However, some of the officials felt journalists should not report on the possibility of hazardous spills in their community if one has never happened locally (36.4%) nor visit accident scenes immediately after freight spills (27.3%).

Most officials agreed, at least somewhat, that journalists should report potential health or environmental hazards (100%), visit/document spill scenes (63.4%), and report potential side effects of exposure (63.4%) and how much was spilled (63.6%), investigate whether their local community has a preparedness plan for responding to spills (54.6%), and report exactly what was spilled (54.6%).

Most officials said experts usually make accurate estimates of health risks from spilled chemicals (72.3%). Most also estimated a significant risk that a freight spill would occur in or near their community in the next year (63.6%), but the same number felt a freight spill is more likely to happen elsewhere than in their community within a year. All officials agreed that transportation companies should take more steps to prevent freight spills, but fewer officials (72.3%) believe the federal government should take more steps.

Spill notifications. Most journalists who track police, fire and other emergency reports said they do so by receiving daily emails from law enforcement (69.2%), getting tips from readers emailed or posted on social media (69.2%), or following social media accounts of law enforcement agencies (61.5%), listening to a police scanner (53.9%), calling police or fire stations daily (38.5%) or collecting paper reports from police or other departments (38.5%).

Other methods (30.8%) included tracking Pipeline and Hazardous Materials Safety Administration news releases, receiving emails about spills from state emergency services, or receiving daily fax reports from state police.

The transportation officials initially learned about spills from different sources since they often receive word before the journalists do. Primarily, the officials learn about spills through law enforcement agencies (69.2%), local or state transportation offices (53.9%), non-police/fire emergency/response departments (53.9%), citizen calls or emails (38.5%), fire departments (30.8%), other methods (30.8%) including required notifications from freight companies, National Response Corporation, transportation management centers, and news outlets.

Twice as many officials (15.4%) learned about spills from social media sites or law enforcement social media accounts than from electronic police/fire reports or police scanners (7.7%). None received reports from hospitals, and 5.4% said they do not seek information about spills.

Some agencies also post published local news stories on their website or share them via email or social media. The most common method of communicating with the public about spills was by answering calls, emails and texts from journalists and others. Communicating with media organizations about spills is a higher priority than posting information online.

The journalists said a typical story (in print or web coverage of a spill) was medium length, 151-500 words (33.3%), followed by briefs of 1-150 words (26.7%) and very long stories exceeding 1,000 words (20%). Nearly 7% of the journalists said they probably would not report on local freight spills, but another 7% said they might post a captioned photo or video clip instead of a full story.

If they did produce a video spill story, it was likely to be very short, 30 seconds or less (33.3%) or slightly longer, 31-60 seconds (20%). Another third of the journalists said their organization never runs or posts any videos.

The most popular news source among the journalists was digital/online news (75% used daily), followed by national newspapers (43.8%), Twitter or Facebook news feeds (43.8%), radio news (37.5%), local or regional newspapers (37.5%), television news (31.3%), and other news sources (18.8) including wire services and email updates from various national and local newspapers. By comparison, most transportation officials personally get their news from TV news and digital/online news (72.7%), followed by Twitter or Facebook news feed (63.6%), radio news (45.5%), local, regional or national newspapers (36.4%), and 911 communication centers (9.1%).

Recommendations and observations from journalists

The journalists described a variety of challenges and barriers to reporting about spills. These included learning chemical names, getting details right, getting solid information before reporting a story, gaining access to information and spill sites, identifying response procedures, and physical danger to reporters including hazardous exposure and working in heavy traffic situations. They said journalists often lack needed training including basic understanding of hazardous materials, toxicology, chemistry and risk. Journalists need to know how to back up a claim of dangerous or not dangerous and explain why.

Gaining access to authoritative interview sources on deadline is often difficult or even impossible. Public relations road blocks are common, both from transportation companies and government agencies. Transportation companies often will not talk to reporters unless they have a media relations representative who will provide a prepared statement. News agencies often do not get reports as quickly as emergency response personnel.

One journalist complained about *“very poor work by industry public affairs officers and those at law enforcement agencies who don't know as much about the cause of the accidents or the severity of the releases as the reporters doing the work.”*

Searching for critical information on deadline also is often not possible, such as efforts to identify where hazmat routes are located, potential substances being shipped, and area emergency plans already in place. Much of the needed information is not readily available, forcing journalists to file open records requests. One journalist said:

“It's vital for reporters to get the disaster plans long before potentially catastrophic events occur. This is true not only for all modes of transportation but also the EPA's risk management plans on fixed sites. Reporters also need to obtain spill databases from multiple sources, include state and federal environmental protection agencies, U.S. Coast Guard, Federal Railroad Administration, etc.”

A journalist who wrote about rail hazmat issues for *Trains* magazine said:

“Journalists need to do their background research and not rely on the ‘in the moment’ tidbits they’ll get. Even small errors make them look foolish to rail industry professionals, and that lack of credibility will lose interviews. For instance, ‘tankers’ operate on highways. ‘Tank cars’ are railcars that carry liquid or gas bulk items and the vast majority aren’t hazardous. Showing a clip of a unit train of vegetable oil with dramatic music and a frightening voice talking about the ‘bomb trains’ running through town isn’t going to build trust. Rail industry professionals and researchers have always been more than happy to share information when asked without preconceived notions. Accident reports and research findings are all easily obtainable on the Federal Railroad Administration’s website. But going in with already well-formed but misinformed ideas will get you nowhere. They can tell from the first question if you know what you’re talking about or are just trying to grab headlines. If it’s the latter, they’ll clam up, and rightfully so.”

Another journalist said a focus on solid reporting can help get a good story despite some of these obstacles. These include doing background research, verifying details, asking intelligent questions, and listening to the answers to get a firm picture of the situation before asking more specific questions. Interviewing multiple stakeholders including freight industry and government representatives, researchers, etc. helps journalists avoid bias, misinformation, and exaggeration. Journalists also should build relationships with transportation sources and explain how the freight industry changed and improved its safety procedures in response to past spills.

This journalist also suggested that the Transportation Technology Center, a subsidiary of the Association of American Railroads, might offer reporter resources and training via its Security and Emergency Response Training Center in Pueblo, Colorado. Reporters would learn the basics of freight hazmat, put on hazmat suits, and learn how tank cars' equipment works. The respondent said:

“We really need to get away from the fear and the inaccurate reporting. In my area, rail transportation spills are very rare. Truck spills from saddle tanks are common but usually don’t pose a public health risk. There are certain hardware kits and suits used to deal with leaking vessels. Most hazmat teams and the hazmat teams dealing with railroads have this equipment. RRs are typically very well trained in spill response; however, I am not aware of their typical response time. Maybe some gases should be shipped in smaller vessels that are not manifolded together, for example, a bundle of cylinders where each one can be isolated/has a shut off valve. That way, an entire tank car volume wouldn’t necessarily discharge.”

Recommendations and observations from transportation officials

One transportation official observed that news crews often are denied close-up access to spills to assure their safety. Another official said, *“Sometimes we have challenges with the media showing up on scene and getting in the way of crews on-site.”*

Another official said, *“Our organization is very forthcoming with information about the nature and status of spills. We often work with reporters who may not have much background in transportation, applicable regulations, safety measures or hazardous materials. Helping them report stories accurately often takes careful attention.”*

One official said media should focus on public safety needs first, especially informing the public about risks, evacuations, etc. He said reporters tend to push too *“quickly for causes and possible penalties, but they need to make sure the critical information gets to people impacted ASAP.”* Another said:

“The biggest challenge is always maintaining the proper flow of communication between all involved parties. Hazard communication is challenging in a digital information environment because high-profile events lead to continuous coverage. This allows speculation and misinformation to spread rapidly, while officials work to confirm information.”

One official recommended that newsrooms hire more experienced reporters: *“Send a reporter and cameraman, not one person to do both jobs. Talk slower for better communications, and know what your resources are – who to call, who to speak with, to get just the facts: who, what, why, where, when.”* Creating and maintaining a consistent public message through all agencies involved is a major challenge. One official said:

“Information sent through press releases may differ from what reporters gather from responders and witnesses on scene. We are not a news outlet, so we do not have investigative information to provide – only information we gather from news outlets or industry professionals who share information with us.”

One official feels that reporters should be more proactive:

“Understand the industries that comprise regional economies, so there is less surprise about the nature of work occurring and materials moving through areas. Report on preparedness. Provide BALANCED information about risks from truck, train and other-mode freight transportation. Ensure accuracy in reporting, and disregard the typical sensationalism!”

Another official said journalists need to work more closely with area contingency and emergency management planning committees, *“to better understand planning and response for hazmat incidents, and to gain better understanding of hazmat.”* He said journalists should interview official sources rather than people not involved in the response organization.

When reporting on specific chemicals, journalists should verify the credibility of information sources: *“This is not the type of information that should be received from the general public. It should come from emergency officials.”*

He said conscientious journalists should “handle these types of situations with an abundance of caution rather than causing panic, and realize that the safety of the community comes first, not providing interviews. They need to report accurate information, respect the spill site and the boundaries that transportation companies put on access, and limit eyewitness interviews to people who actually know information, not just provide hypothetical ramblings.”

This official also noted that emergency response teams could do a better job of routing traffic away from spills. “We often close roads but do not assist drivers in a new route,” he said. Another official mentioned that when freight spills occur on private property, they are often more easily contained before reaching a water supply or places where people live and work.

A third official said spill response agencies need to find more ways to get the word out to travelers who may not use local media. Interagency coordination across federal, state and local agencies is a greater challenge in some areas of the U.S.

Recommendations and observations from truckers

To promote wider participation in the survey, the investigator shared a link on the public trucker’s forum “TruckersReport.com” and posed a few open-ended questions about their own experiences. Below are some of the anonymous responses the truckers posted in the forum.

Truckers described their safety routines but also identified gaps and weaknesses in the transport chain that could exacerbate spill impacts. A trucker, who asked that his origin location not be disclosed, said he hauls various hazmat materials weekly. He said he has mastered the existing/recommended spill prevention procedures:

“The most important thing I do is always secure the load to the best of my ability. Sometimes that is a load bar behind two or more even skids. Sometimes it means using multiple straps to secure odd shaped or single pieces. I have used as many as 8 straps on a single load, because of multiple pieces of hazmat in that trailer. I’ve never had an inspector tell me I was using too many straps.”

A trucker from Lichfield, Minnesota, said the freight company responsible for a spill is often held responsible for the cleanup until the spilled substance and any contaminated soil is disposed of. Often, the surrounding soil is tested and then incinerated in a high-temperature burner or hot mix plant burner.

Also, many trucks have interior equipment designed to contain a spill or fire:

“I worked at a hazmat hauler that had frozen alkaline batteries in the winter warm up and start a reaction. It burned down a whole trailer full of other haz waste, but their trailers have an interior pan 24 inches high inside with a rear-locking gate inside. So the whole thing was contained inside the pan.”

A Tennessee trucker said keeping freight trucks out of towns “*would be safer, especially if hauling explosives. There are a lot of inhalation hazards, meaning that if you inhale it, it could be deadly. So I would think it best to keep them away from as many people as is possible.*”

A trucker from Longview, Texas, proposed a solution – that each freight truck carrying hazardous loads should have a "beacon transmitter" that continually transmits its load information. In the event of a crash or fire, emergency personnel could "read" the beacon from a distance. It would be similar to an airplane's black box, or flight radar, for ground transport.

Hazmat decals, often fastened to diamond-shaped placards, tell hazmat responders what chemicals or materials freight trucks or trains are carrying and what type of risks they pose such as fire, explosion, poisoning, etc. However, truckers complained that decal standards and enforcement are often lax. A California trucker said:

“There are laws to enforce the proper use of hazmat decals, and the driver has to have the hazmat endorsement on their driver's license. But that just means they passed a written test. For a trucker to get a hazmat endorsement is almost a joke of a procedure. Just study a chapter in the driver handbook, take a written test, and only fail x amount of questions and boom – now you can haul hazmat loads.”

However, she said hazmat certification is much more rigorous outside the transportation industry:

“When I worked in construction, we had to take an entire week course to get our hazmat certification, written tests, suited up and went outside and did an actual hazmat response scenario with a dummy lying on the ground next to a barrel of 'spilled' hazmat. We'd have to get the dummy evacuated and the 'spill' contained in a big yellow barrel. I've seen hazmat spills on job sites, which was just a little oil leak under the crane. They'd make us move the crane and excavate an area 4 feet square around the spot of oil, 4 feet deep and ship the 'hazmat' soil on some train out to the desert where they keep nuclear waste -- we 'heard'.”

The California freight truck driver said it's common knowledge that some truckers peel off their hazmat decals to avoid a fine for a minor inspection issue.

If the truck is involved in a spill, hazmat responders may not be able to quickly determine how to handle it:

“I know there are still truckers out there who like to peel off their hazmat decals before crossing scales in some states. A driver in Montana was peeling off his placards to cross into South Dakota, and he ended up crashing – creating a spill. It was reported probably only because there were witnesses. Ironically, he didn't get into too much trouble as I recall. Oftentimes, the weigh station scale house will order a hazmat labeled truck to pull around back for an inspection. I have had it happen a few times like that, they will say they have to do so many hazmat load inspections this month – we didn't think anything was wrong; just, you're here, so let's inspect you. So some of these drivers may have a known issue like thin treaded tire or a burned out light, or an oil leak or maybe even a known leak in his load and he just doesn't want the hassle of taking a chance of getting inspected so they pull off their hazmat decals and cross the scales and go on their way to the next stop and put the decals back on.”

The trucker also said that freight hazmat enforcement is very uneven across the U.S.:

“Some shippers and carriers get so heavily involved with ensuring the loads are properly secured and labeled that sometimes they won't even dispatch a driver until the driver has called in to explain their load and carrier is sure the proper placards and securement are in place... I got pulled over on the side of the interstate for an inspection. The officer found about a 1-inch by 1-inch piece of old placard and cited me for improper placard for my load. Then he crawled deep inside my 53-foot trailer and found a pallet that was not shrink-wrapped properly with that plastic wrap and cited me for that. Both of these violations carried Out of Service orders, as well. So both my carrier and I racked up a bunch of anti-safety points, which only time and clean inspections can heal.”

A trucker from Longview, Texas, said there are requirements for carriers to report all hazardous product spills and breaches over a certain amount. However, he said:

“I'm unclear if this data is publicly accessible and when it is available. I'm sure some breaches are not reported, if they feel they can get away with it and can cover up the incident. If law enforcement is called out for any reason, I can't imagine it not being reported per law. I suppose there can be various shenanigans in some cases in an effort to keep the public out of the loop for whatever reason. I imagine many relatively minor, benign spills are probably better off not being conveyed. Symptoms for many spills mysteriously only appear once the incident has hit the evening news. It's hard for me to imagine the bigger spills affecting the general public not making news, especially in this day and age where everyone has a video camera, a desire to get noticed, and a desire to extort cash from some big carrier or chemical producer.”

A Tennessee trucker who experienced a hazmat spill described the media response:

“I had a hazmat spill in Jackson, MS about 20 years ago. It wasn’t a big deal – just made a big mess. It was an ingredient that went in paint. They had stacked 5-gallon buckets up pretty high on a pallet. I had double van trailers that were sealed when I picked them up, so I had no idea what was in the trailer. I-20 across MS was not a very smooth road 20 years ago, so some of the buckets fell off the pallet and burst open, spilling the ingredient out under the back door of the back trailer.”

Apparently, at least one affected driver contacted the police or the media. She said:

“Obviously, the product got on some vehicles behind me so I’m assuming some of them contacted the media. I stopped in Jackson to switch drivers, and that’s when I noticed the spill. I contacted the company, and they said I better contact the police. By the time the police got there, I was covered up by reporters wanting to know what happened. The media was all over it. I politely told them I could make no comment until I contacted my company. It was the first spill I ever had to deal with, so I had no idea how the company handled it. Basically, I didn’t know what to tell them. I called the company and told them the media wanted to know what happened and what should I do. They said well, there’s no hazard involved, so just tell them what happened as briefly as you can and give them our number and tell them to contact us if they have further questions. EPA had to come out and clear the truck before I could move it, about 8 hours later. Guys with hazmat suits had to get in the trailer and secure the contents before EPA would release it. That one spill is all I’ve had to deal with in 42 years of trucking, but at least I got a peek of what I would deal with if I had a spill so I’ll be better equipped to know how to deal with it if it ever happens again. I wasn’t trying to hide anything from the media.”

A Minnesota trucker said the driver is often the first to get blamed for a spill. However, he said that

“Usually, companies who run a good program have their drivers trained and stand by them. Mechanical or faulty equipment wouldn’t even be considered, as this company was very good at maintaining and servicing their equipment. One a year, every driver is required to go through training to bring them up to date on regulations.” However, a Tennessee trucker said most drivers do not receive any media training: *“Most drivers never have to deal with a spill. So if you talk to a driver about a spill, you will catch him off guard. It’s not because he’s trying to hide something. It’s just something he hasn’t had to deal with before. They do not teach you in hazmat class how to deal with the media.”*

Even when the media do cover a spill, they usually do not report on non-compliance with the protocols designed to assist truckers and hazmat workers with spill cleanup.

A California trucker related this story:

“I had a two-stop load of freight of all kinds mixed up in the trailer. Some of it was hazmat – buckets of vanilla extract or something like that. Anyway, I get to the first stop and back up to the docks. While walking my dog, coming back to get back in the truck, I peek around the end of the trailer to see how they are progressing. The forklift dude had poked a hole in one of the buckets, spilling the mess everywhere. I call my company first, but they were basically no help.”

She said CHEMTREK, a round-the-clock resource for obtaining immediate critical response information for incidents involving hazardous materials, was not helpful:

“CHEMTREC was basically no help – just sternly telling me over and over not to leave till it was cleaned up. I kept asking them, “Who decides if it is ‘clean’? Should I call the fire department?” Then I got the ‘I gotta get off the phone’ treatment from them.”

The trucker said the company at the dock encouraged her to leave before the cleanup was finished, so they could unload more trucks waiting in the yard.

“I refused to leave ‘till it looked like when I got there,” she said. “The dock foreman guy jumped at me like he was going to hit me, and the supervisor sent him to Walmart. Then they assigned me two forklift guys. We unloaded about half the trailer, sprinkled down cat litter, peeled off the shrink wrap covered in residue from the spill, re-wrapped it in fresh shrink wrap, and swept out the trailer. I called my company safety guy who I had been talking to before. He had gone home for the day. I figured he would call me the next day to ensure the load was OK, but I never heard from the company at all, nor from CHEMTREK.”

Reflecting on the incident, she concluded:

“It was very frustrating that the company who caused the spill first were not even going to tell me about it. The dock foreman who handed me my paperwork jumped at me ‘all bully’ when I said I wouldn’t leave ‘till it was cleaned up. Then the safety guy I was talking to at the place that loaded it went home for the day without ensuring the problem was resolved. I had to roll through one of the toughest weigh stations in the U.S.-- Banning CA and they didn’t even inspect me on this load. Que up the Twilight Zone theme tune.”

CONCLUSIONS

The findings highlight how the public learns about transportation toxic spills and sheds light on how communities and professional communicators could improve emergency preparedness based on shared information about past transportation spills.

Most respondents were older and highly experienced in their jobs. However, there were key differences in how journalists vs. transportation officials viewed freight spills. The officials valued preparedness more than the journalists and were more confident about how well their communities were prepared to deal with a serious spill.

Both journalists and officials agreed that the media generally does a poor job of covering spill preparedness, and nearly all of the officials felt that most journalists lack adequate knowledge about freight spills. Even so, the officials viewed overall media coverage of freight spills more favorably than the journalists did. Both groups admitted that reporters are often forced to file FOIA requests in order to gather details about spills.

Journalists were more likely than officials to argue that freight transport should travel through rural, remote areas away from population centers. Officials were more likely to prefer that freight trucks and trains travel in or near urban areas where more communication channels are available to alert people about hazards and where hazmat responders can respond more quickly.

Surprisingly, the transportation officials reported that their agencies use social media more heavily than the journalists' media organizations. The officials also were more optimistic than journalists about how easily reporters can obtain timely information about freight spills. For instance, reporters were nearly twice as likely as officials to say that reporters are blocked from getting eyewitness interviews or that radio stations broadcast information about hazardous spills.

Communication improvements in a coordinated response to spills could reduce damaging impacts including health threats. Improved communication with the public also could help communities and policymakers develop priorities for addressing problems with local transportation infrastructure that contribute to spills such as repairs to bridges, roads, and railways. Greater transparency in communication about transportation spills could boost public confidence in news media organizations, transportation companies, and emergency responders.

Overall, the surveys and trucker comments highlighted inconsistent enforcement of existing hazmat freight regulations and suggested some reasons that serious spills sometimes are not reported to the public. More hazmat transportation training is needed for both journalists and freight operators, to help public audiences understand

The risk of hazardous transportation spills increases the challenges and potential costs of operating the intermodal network of highways, rails, waterways, airports, and shipping terminals. Examining how these accidents are presented to the public could help corporate

leaders and policymakers more effectively determine the levels of transportation-related risk that are acceptable and affordable. Examining public risk messages about these incidents also may mitigate potential public outrage after accidents and help transportation leaders identify priorities for response and preparedness.

RECOMMENDATIONS

The findings highlight challenges in news routines and reporting strategies used in coverage of serious freight accidents, as well as significant gaps in official communications about these spills. This project highlights systemic opportunities for improving public communications about serious spills.

When officials blame a freight company for an unintentional or preventable hazardous spill, journalists should attempt to get a statement from a company or agency representative, not just from eyewitnesses or freight operators. Even so, when a freight driver or other operator is blamed, he or she should be given an opportunity for comment when possible. Also, freight companies should train their operators to provide public comments about spills. Freight company employees with a better understanding of media relations and corporate reputation management could minimize the economic and environmental impact of future spills.

Freight companies, not just transportation agencies, should establish a social media presence and post tweets or other brief statements when a major spill occurs that involves their employees or equipment. Public relations research suggests this transparency and expressing concern about health and safety can improve the visibility and brand trustworthiness of any company.

Journalists need training about how to find and responsibly cover transportation spills. They need strategies for quickly finding spill databases and identifying hazmat chemicals and their toxicology, an understanding of typical response procedures, ways to find disaster plans including hazmat routes, safety precautions at contaminated and heavy traffic sites, and risk analysis skills including putting numbers into context. They also need easy access to key officials who can provide necessary details on deadline.

Transportation officials should receive more media training and be prepared to convey key facts to the public in a timely manner, rather than automatically force journalists to file open records requests to find out what happened at a spill site. One journalist said her newsroom had to wait more than seven months to receive a basic spill report. Timely access to information about specific spills can reduce speculation and sensationalism in news stories because it eliminates the need for journalists to turn to alternative, less authoritative interview sources or unnamed sources.

Officials should help journalists develop useful, explanatory content such as risk comparisons, relative risk assessments, explanation of testing/cleanup processes, and practical advice to area residents or motorists. This kind of explanatory content can mitigate negative responses including future litigation. Officials should avoid language that amplifies risk, such as speculation, blaming, vague advice for avoiding exposure to hazards, false alarms, and failure to acknowledge serious threats. Below is a model of the factors that could contribute to higher and lower levels of public understanding about hazardous transportation spills (Figure 1).

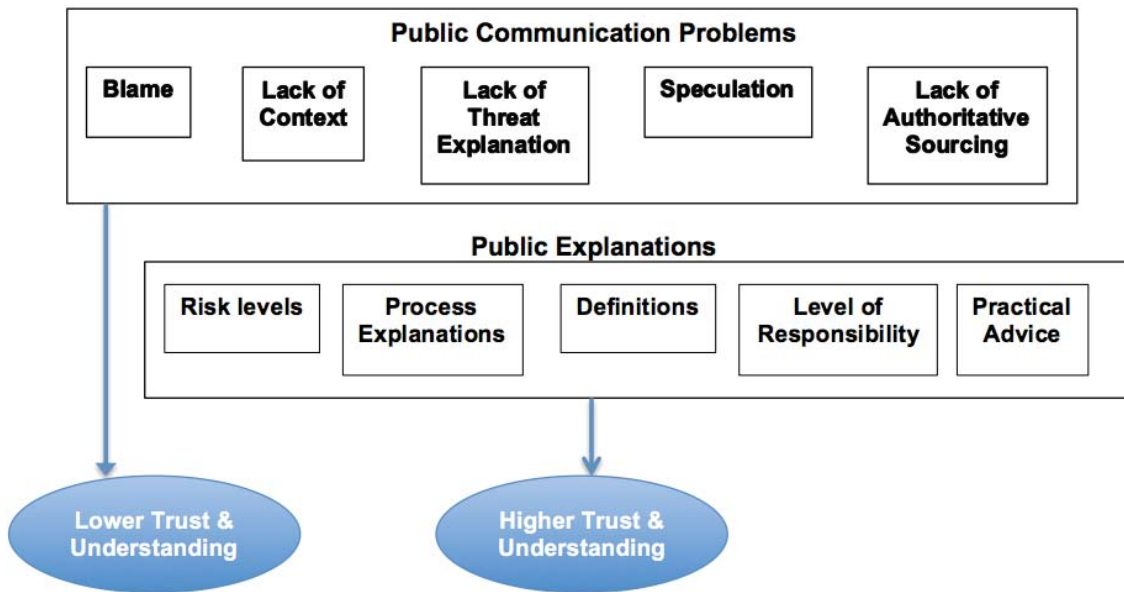


Figure 1: Communication Factors in Public Understanding of Hazardous Spills

Improved public communication about the actual scope and long-term risks of hazardous spills is needed to improve local preparedness and crisis response within communities, as well as within individual freight companies. The findings also could help freight companies mitigate potential public outrage or media sensationalism, and help transportation and emergency response officials identify priorities for hazardous spills emergency response, cleanup and hazard mitigation. Interdisciplinary transportation curricula at UTC universities might include a module to train journalism and transportation students how to work with the media and directly communicate about different kinds of transportation accidents.

Follow-up research could examine the ways in which the dearth of public communication about freight spills causes damage beyond the cost of the spills, and how transportation companies and agencies should weigh the risk of reputational harm against the societal benefits of improved communication about spills.

Future research also could identify new ways to improve preparedness, training and response strategies for future hazmat spills for transportation officials, first responders, and journalists. These improvements could reduce the high social and economic costs of such incidents.

ACRONYMS, ABBREVIATIONS, AND SYMBOLS

CHEMTREC	CHEMTREC emergency response hotline
Diff	Difference
DOT	U.S. Department of Transportation
EPA	Environmental Protection Agency
FRA	Federal Railroad Administration
Hazmat	Hazardous materials
Haz	Hazardous materials
NCITEC	National Center for Intermodal Transportation & Economic Competitiveness
NRC	National Response Corporation
%	Percent
*	Probability (p-value)
PHMSA	Pipeline and Hazardous Materials Safety Administration
PR	Public relations
RR	Railroads
Transp	Transportation officials
U.S.	United States

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