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# When **Bad Things** Happen to **Good Engineers**

*When a crisis strikes, engineers need to be ready to take decisive action in the midst of turmoil.*

**BY EVA KAPLAN-LEISERSON**

**I**t's a phone call no engineer wants to receive: Something has gone wrong—very wrong. There's been a structural collapse at a construction site. Or maybe an explosion and fire at a chemical plant. Or a breach at a power plant's reservoir. People have been injured or, worse, killed.

Engineers are tasked with protecting the safety, health, and welfare of the public, but sometimes, despite their best efforts, they fail in that mission. Examples, unfortunately, are not hard to find. In January, a chemical plant explosion in Morganton, North Carolina, killed one and injured more than 10 others. In July, a ceiling panel fell in the Interstate 90 connector tunnel in Boston, crushing a car and killing the driver. In October, three lanes from a highway overpass in Quebec crashed onto the highway below, killing five people.

Whether tragic incidents are due to design flaws, process errors or overconfidence, the event remains—despite the wishes of many to rewind time and make changes. In the aftermath, organizations

and individuals must take steps to communicate with the public and media, as well as with internal staff, and revamp company practices if necessary. After such a traumatic event, what steps are crucial to not making the problem worse, and what are the best practices?

James Lukaszewski provides crisis management consulting and coaching to companies through his organization, the Lukaszewski Group. He has developed a list he calls "Profiles in Jell-O," behaviors during a crisis that lead to long-term trouble. They include denial, victim confusion, "testosterosis" (refusing to give in, looking for ways to hit back), arrogance (refusing to apologize or express empathy), search for the guilty (shifting blame), fear of the media, and whining.

"Profiles in Jell-O is a recipe for staying in trouble and making sure the trouble stays with you," Lukaszewski says. In an article on the topic, he explains that executing these behaviors guarantees serious problems with a company's reputation and damage

to its brand—not to mention increasing the pain for victims or their families.

Instead, Lukaszewski advises companies to prepare for a crisis before it happens by addressing potential scenarios. A key component of this plan, Lukaszewski says, is a contact list that enables critical people to reach each other immediately in order to make fast decisions and stop the production of additional victims. This one step makes up 85% of readiness, he explains. In addition, hypothesizing events helps companies determine how much decision-making power they need pre-authorize for certain people, so when a crisis happens, those people can take action immediately. "Hesitation, timidity, silence equals defeat," Lukaszewski says.

He recommends a five-step crisis-response strategy. Organizations must 1) stop the production of victims by containing the accident; 2) care for the victims; 3) talk to employees and those directly affected to reassure them that the situation is being

handled; 4) notify the government, business partners, or anyone else who will be affected; and 5) deal with the “self-appointed, self-anointed,” including the media, politicians, and other critics who will express their opinions and criticisms.

All of these steps must be done within the first 60–120 minutes, Lukaszewski says. People with process minds, like engineers, may have the instinct to start dealing with the operating issues first rather than the victims, but this list reminds them to focus their attention on what’s most important.

In addition, some people may not want to talk until all the facts are gathered—a mistake in Lukaszewski’s book. Fail to talk first and often, and everyone will do your talking for you, he says. “The media will hire engineers to do analysis, the victims will hire engineers to do analysis, everyone will be talking but you.”

At NSPE’s 2006 Convention in Boston, Cathy Clark, public affairs coordinator at

taken to obtain forgiveness, Lukaszewski explains. He offers a formula for reestablishing trust and credibility with the public. It includes eight steps, each of which is critical and must begin within two hours of the incident. They are

- Candor—acknowledge that a problem exists, that people have been affected, and that something needs to be done;
- Explanation—describe why the problem occurred and any known causes (even if only partial information is available);
- Affirmation—discuss what’s been learned from the situation and how it will affect future behavior, commit to reporting additional information as it becomes available;
- Declaration—commit publicly to specific positive steps to resolve the situation;
- Contrition—express regret, empathy, sympathy, even embarrassment;



the Minnesota Department of Transportation, presented the seminar “Handling Media Attention: Are You Ready?” She also stresses the need to get information out as soon as possible, even if all the information isn’t in. “If you release your own bad news first, you take away that ‘gotcha!’ that media love and thrive on,” she says.

Clark recommends designating a spokesperson who will be the single point of contact for media inquiries and who will coordinate the technical experts and the legal counsel. The spokesperson can be someone in the public relations department or a project manager who has received media coaching or has extensive experience working with the public, she says.

If people have been injured or killed in the incident, additional steps must be

- Consultation—ask for help from those involved, government, and others to develop better solutions;
- Commitment—set goals at zero errors or problems, promising that, to the best of your ability, nothing like this will happen again; and
- Restitution—pay the price, going beyond what is required or expected.

Companies sometimes ask if they have to do all eight steps, and Lukaszewski often responds, “If your mom was on this call hearing you talk like this, she’d slap you alongside the head. She would absolutely look at you like she didn’t know you. ‘You’re not the child I raised,’ she’d say.” The only thing that completely resolves the issue is to do all eight steps, Lukaszewski says. “Each

of these eight steps is really a de-news-ification and litigation reduction. Every one you take makes you more boring to reporters and editors. Do them all, and very few will come to your press conference.”

In talking to the public, media, or internal staff, it’s important to craft key messages in easily understood terms and repeat them often, Clark says, since people don’t process information as well during a crisis. Technical organizations are prone to using jargon or statistics, she says, but hiding behind facts and figures can appear cold and uncaring. On the contrary, you want to sincerely demonstrate care, concern, and empathy.

The Colorado Department of Transportation is one organization that got it right when faced with a worst-case incident. In Golden on May 15, 2004, a steel girder secured by a subcontractor with a temporary bracing system fell into the eastbound lanes of I-70 and hit a car, killing three people, including a two-year-old child.

The tragedy was hard on CDOT staff, including Bill McDonnell, P.E., resident engineer for the Region 6 north section, who managed the project oversight team, and Stacey Stegman, CDOT’s public relations director. But from the beginning, the organization was committed to openness and integrity.

“Throughout the whole thing, we always wanted the truth to come out,” Stegman says. “We never hid anything, have always been very, very open. Even still to this day, we just feel like we want to learn as much as possible from this incident.”

Due to a National Transportation Safety Board investigation, CDOT employees were restricted in what they could say publicly about the situation. But what they did do was apologize, even though they could not address the issue of culpability.

“We said, carefully worded, ‘We are responsible for public safety on our highways,’” Stegman explains. CDOT’s executive director also called the families of those who died to express his sorrow and apologize, Stegman says.

In addition, Stegman says, the department said it was fully committed to the investigation, would always be open and honest, and was cooperating with NTSB and law enforcement to find out what happened and fix the root causes.



IN MAY 2004, THREE PEOPLE WERE KILLED WHEN A STEEL GIRDER FELL INTO THE EASTBOUND LANES OF I-70 IN GOLDEN, COLORADO.

There was little else they were allowed to say, Stegman explains. “We really wanted the public to know that we were going to work to rebuild their trust, that they should have trust in us, that we were going to make sure this wouldn’t occur again, and that our highways are safe,” she says.

The organization also kept open communication lines with employees by giving them investigation updates and asking them to direct any questions to Stegman and the organization’s chief engineer, who provided technical expertise. The media were looking for people to second-guess their colleagues, Stegman says, but she asked employees to respect their coworkers and not talk to the press. “Nobody commented off the record, went behind anyone’s back,” she says. “That was very important.”

Even before the NTSB investigation was completed, CDOT reviewed its policies and made changes that constituted a more structured approach to quality control, Stegman says. Contractors must now submit a girder erection plan, including information on temporary supports, that must be stamped by a PE. Also, a pre-erection meeting with CDOT will review the plans.

“As a state, we still don’t approve erection plans,” McDonnell says, “but we review the plans and require that a contractor obtain a PE to stamp the plans

and then certify at every work stoppage that the work has been performed to the PE’s satisfaction.” That process was implemented starting in the summer following the accident. The policy change also requires daily inspections by the contractor and CDOT staff until the bridge deck is poured, McDonnell explains.

As CDOT’s resident engineer, McDonnell was not the engineer in charge of projects’ day-to-day construction management. His involvement in the project is being reviewed because he managed

and how they satisfy their obligation to protect the safety, health, property, and welfare of the public while implementing CDOT policy, McDonnell says. “My understanding is that they are satisfied with the implementation of this new erection plan spec,” McDonnell continues.

But he says his lesson learned is that incidents like this affect you more than you might initially realize. “It becomes all-encompassing in your life,” he says. “As engineers, we take our responsibilities very seriously.... So trying to get help to help

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the project oversight team and because the project engineer was not a PE. CDOT policy allows for nonlicensed engineers to manage construction projects, however. “When you don’t have a licensed engineer, the RE is designated as the engineer of responsible charge—it’s delegated back upstream,” he says. The Colorado State Board of Licensure for Architects, Professional Engineers, and Professional Land Surveyors is reviewing the incident now that the NTSB report has been released.

Mainly they are looking at roles and responsibilities of resident engineers

you move on and put things behind you ... is the best advice I could give.” Whether that means reaching out to friends, family, or professional support depends on what works best for the individual, he says.

As for the organization, it is recovering as well. “I think ultimately when an agency is open and honest and does the research and stands by it and does the right thing and doesn’t hide, doesn’t make excuses, just stands up like you’d expect any individual with integrity, then you can’t lose,” Stegman says. “You end up recovering and maintaining credibility and public trust.” **PE**