Public Communications in an Emergency

The importance of honest and thorough communications with the public in a potentially dangerous situation must be made an integral part of a disaster plan

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Each year, in May, about 20,000 high school music students from all over the United States, but principally from Texas and Kansas, come into Enid, Okla., for the Tri-State Band Festival. For some of the bandsmen from the small communities in this sparsely settled region, it's the first long bus trip and first look at night lights. For the parents left at home, I'm sure many anxious moments fill their hearts, concerned for their fledglings' safety.

There is simple no *good* time or backdrop to spew 500 tons of ammonia from a line rupture, but this has to be about as *bad* a time as you can get.

Farmland's Enid nitrogen fertilizer plant is about eight miles due east of downtown Enid. Much of the anhydrous ammonia product from the plant is pumped northward through a trunk line of the Mid-America Pipeline Co. (MAPCO).

On the morning of May 7, 1976, a bulldozer was working on an oil well "frac" pit, about six miles north and one mile west of the plant. The bulldozer struck and ruptured the 8-in. line which was then operating under about 700 lb./sq.in. pressure. The location of the rupture put Enid 6½ miles directly southwest.

Abnormal wind direction created problem

Normally in central Oklahoma, the prevailing wind blows 5 to 15 miles/hr. from the southwest. On rare occasions (about 5% of the time) the wind blows from the northeast. You guessed it . . . the wind was from the northeast when the switchboard operator told me that someone just called to say that they had hit the MAPCO line just about six miles north of the plant. Not yet alarmed at this time, I asked the switchboard operator if she had transferred the call to the pipeline dispatcher. She said that she had. I settled back to work on the Friday reports. The production supervisor came in to say that he and another man, air packs in hand, were going to go check out the report.

At this point I was still thinking of only a small drip. The production supervisor came running into my office stating, "Jim, it's really bad. I can see it from here!"

As soon as I'd gone out into the yard I began to recognize that we had a potential disaster on our hands, as I could see the huge cloud drifting directly toward Enid.

Trying not to panic anyone, I asked our guard to call the local police and highway patrol for assistance in blocking off roads so that we could prevent people from driving into the cloud. At that time I felt that I needed to get a closer look and do whatever was necessary to deploy people at road crossings and to make certain that the automatic closure system worked as it was supposed to and to manually block in the system.

At the scene itself, a cloud of ammonia was spewing from the ruptured line. At the base of the 200-ft. high white cloud was the bulldozer that had cuased the break. The wind was still blowing steadily from the northeast, pushing the cloud toward Enid. Close by, the farm house was engulfed in vapor, but the crew on the rig said that their boss had gone out in front of the vapor and made sure no one was at home. We circled the cloud to outline safe limits. It was then about 8:45 a.m. We returned to the plant so that contact could be made with the media.

Since every newsman has police broadcast monitors, the minute you ask for help you are immediately thrust into center stage. The steps you take to handle the press are going to govern the impression the citizenry will have of the accident; and in some ways it will govern the level of the disaster, regardless of the outcome.

Most industrial managers have been in that position and have avoided the press seeking what seems to be a safer, low profile position. One does this out of fear that one will be wrong on one point or another, or in some way incriminate the company that employs us. How many times have you heard on TV or radio . . . "the officers of the company were unavailable for comment, but a passerby has this to re-

port . . ." If the newsman is particularly aggressive, he can make you look bad and incriminate your company even if you haven't said a word.

It is much better to take the approach of trying to build good rapport with the press so that on occasions like the ammonia spill, you can draw on previously good credibility.

If you have not had the opportunity to build that rapport before the incident, then be open, candid, and answer all of the reporters' questions as factually as you can. The reporter will usually accept an "I don't know" if most of what you say makes sense.

Decision on need for police is critical

Be aware that calling the local police into any situation will cause some over-reaction. However, usually in the beginning when one has so very little real knowledge of the downwind travel, the length of time the line has been ruptured, etc., it always seems like the thing to do. In retrospect I almost always regret that decision, yet in an emergency I always call. The reason I usually regret the move is exemplified in this case by their having evacuated a residence six miles downstream several hours after the emergency had ended because of a residual whiff of ammonia.

By 9:00 a.m. of that day, calls had come in from the local radio station, Oklahoma City TV stations, local newspapers, and others. As I walked through the office door after my return from the scene, the plant protection guard had been monitoring radio stations and informed me they were broadcasting evacuation warnings.

To reduce the chance for panic and establish my general approach with the press, I first called the two local radio stations. They tape recorded an interview with me which they promptly started broadcasting. later, people who heard this were reassured that everything was okay.

I made it a point to return all the calls from each of the news media. The switchboard was instructed to tell each caller that I would talk with them if I happened to be busy when they called. Again, those who were not local and not familiar with my operating methods with the press were astonished when I called them back. They were used to getting the runaround. When you call and are ready to do an interview, even on tape, your credibility is well established.

One interesting—and useful—outcome: we were able to purchase a movie film from KW-TV, Channel 9, in Oklahoma City. When I telephoned many weeks after the incident to see if they had the film, the newsman remembered the incident and volunteered, "You are the person that gave us a real interview in an unusually difficult situation. It was really fun for us to work on that story. Yes, we have the film and you are welcome to it."

Some black and white slides were prepared from film shot by Bill Edson of the Enid Publishing Co. staff.

After the accident, and with no one injured and the citizenry adequately informed, the time comes for a re-evaluation. One needs to make sure that everything that could be done was done and that everything from a mechanical standpoint operated according to design. On the technical matters, the automatic check valves which are located approximately 10 miles apart did in fact operate when the rupture occurred. The main line pumps depressured immediately so that conditions were worse at the outset and then improved with time.

It took about 4½ hr. for the line to vaporize the 500 tons contained in the 10 miles between the check valves. This volume of ammonia, driven with the 10-mile/hr. wind, etched out a parabolic-shaped scar about six miles long and ½-mile wide. The flow along the ground appeared to be laminar, as evidenced by photographs taken the following Monday morning. The sharp contrast between the green wheat and the yellow scar clearly marked the path of the ammonia.

During the first hour of the incident, it was safe to be as close as 1½ miles immediately downwind from the rupture.

As far as we were able to determine, there were no livestock, not even chickens or dogs, injured in the accident. Only one man was slightly injured; and he was the driller on the well platform where the break occurred. He was injured by driving through the cloud along the road immediately downwind from the incident. He did this returning to the rig because he thought it was on fire.

Conclusions

The primary message I wish to make in this discussion is to become more familiar with the media, get to know the reporters on a personal basis, call and talk with them before you need them. Contrary to many opinions, the news reporters are your best friends in an emergency. Always remember that their job is to cover the news story.

I am firmly convinced that the majority of newspaper people do not intentionally cause industry or business to look badly. After all, business buys their commercial time. The media are simply doing their job. If you impede them in doing their job, then they aggressively (and rightfully so) pursue you and embarrass you our of frustration in getting their job done.

I have worked with them very closely on a number of very sensitive issues; and I must emphasize that if you will spend time with them as I have, you will find media people to be very responsible members of your community. Truth is their business, and they respond to it. #

DISCUSSION

SMITH, ICI, England: I certainly go along with everything you say about the media except we have a little trick we like to use in England. If we are offered the choice between a filmed interview and a live interview, we take the live interview. Certainly going to be more nervous but at least they put out what you say, and they cannot chop it around.

One technical question though, particularly I think it concerns people who are concerned with pressure storage or pressure movement of ammonia of any sort. Have you any idea, and I wonder to what extent those scars may give us an idea, how much of that ammonia landed on the ground as liquid.

ATWOOD: How much actually got on the ground as liquid?

SMITH: Yes, and subsequently vaporized normally rather than just in the flash of the gas.

ATWOOD: I would have to judge a very small amount, and the reason I judge a very small amount is that in the news-paper picture taken from the well platform down into the flat pit, had there been an appreciable amount of liquid ammonia I think we would have seen a bigger puddle vaporizing around the bulldozer. And I was down in the pit as early as 12.30 the same day and there was no liquid ammonia standing in the hole.

Temperature wise, the morning must have been about 65- or 70 degrees F.

SMITH: This sort of loss is always amenable to some sort of theoretical treatment, if ever there are any data available of this sort of leak we would be grateful for it because given a certain wind speed, direction and so on you can make some estimate of it but there are precious little data with which to respond to that theoretical treatment. So, if you've got any further data on those figures we would be very glad to receive them.

ATWOOD: Well, all we have is wind direction and speed, and we didn't really have as good climatic data and it didn't occur to us to get that until later on. We do have an advance airforce base that's housed in Enid, and I went back to them and asked certain questions, and they are looking into some information on it. I know the observation we made about laminar flow downwind has been challenged by a great number of people that saw it. And yet from fluid flow calculations and fluid flow phenomena that I've seen in concentric pipes, it just seemed to me that that's what I would have expected with laminar flow pattern in that parabolic scar that went out across the countryside.

Q: Do you, or were you able to determine what concentrations of ammonia it took to cause the crop damage? What was the concentration of ammonia at the far end there?

ATWOOD: That's a good question and I'll have to reason it with you. If it were possible for us to stand a mile and a half, directly downwind, at about an hour after it occurred, I would judge we were standing in 150 to 200 parts per million. Would anybody like to comment on that?

Q: Was this at that crossroads that you pointed out?

ATWOOD: Yes so it had to be less than that farther down, and there was crop damage as far as 6½ miles away. So I would have to reason that, for whatever reason that the cloud stayed along the ground, concentrations less than 500 parts per million did crop damage. Now the crop damate was only temporary, and it's gone away now. Everything is normal.

Q: I just wondered if there was any odor of ammonia in the town? Did it affect any of the townspeople?

ATWOOD: Yes, indeed! And that's one point that I didn't talk about today; it's in the written paper, and that's the decision that you nearly always make in an emergency like this . . .is to call in the sheriff and the local police. When you do that, I think you have to recognize that you've running the risk of overreaction. And in this particular case they were evacuating a house at 1:15 about 6½ miles straight downwind where there was a slight whiff of ammonia. The lady called me and said, "The cops are moving me out. Do I need to leave?" And I said, "Where are you?" She said, "Well, I'm in a certain subdivision . . ." So, "What does it smell like - like you just mopped your floors?" She said "That's exactly what it smells like." I said, "Well, then you are okay."

But, yes, it was detectable.

Q: How do you prevent the start of an accident in the future? This bulldozer man, did he know that liquid ammonia was there?

ATWOOD: Yes, he knew it was there and I'm glad you've asked the question because it gives me a chance to lift out a point that I failed to mention. I don't think that you can protect yourself against this kind of thing. This man, driving this particular bulldozer, was no farther than from me to the the back of the room, from a sign that clearly indicated CAUTION -AMMONIA LINE. He, his driller, everyone on the platform knew the ammonia line was there.

This particular man - that morning I was very concerned for his safety, and I asked if he was hurt. He said he positively was not. I said, "Well, let me see your leg. Maybe you are burned and don't realize it." He raised his pant leg up and he was perfectly okay. And I said, "Well, I knew the line was there and I'd had some experience hauling ammonia."

So I let it pass at that time and it was the next day that I discovered that he had hauled. He had been a truck driver and had hauled two loads of ammonia. The first load he hauled from the Enid plant successfully; the second load he drove off with a coupling still

hooked to the truck. So, somewhere out there - he's still around. I hate to be facetious about it, but against that kind of thing, I just really don't know that we've got an absolute protection system.

Q: Could I ask two questions? The first is very short - a very simple one. What was the damage? Did it knock a hole in the line or did it break the line in two?

ATWOOD: No, it just..it was like a can opener. The front of the bulldozer blade had a chisel, and he dug it into the line and ripped a stretch just about 3 feet long.

CLARK: Well, that means that when the ammonia came out, presumably it was boiling and you chilled down a long length of the line to minus 30°C. or something, and it would contract, and so you've got the pipeline in tension for quite a long distance. Did that cause any other damage to the pipeline, and if so, what did you do about it?

ATWOOD: Well, the pipeline was completely repaired the next morning - didn't cause any other damage. The fact that it got all that cold concerned me, and since I fly in and out of Enid pretty often and I check to make sure that there wasn't any damage - you know, I thought, well, if it froze that much of the distance, maybe there will be a track, But, I couldn't see any.