

READINESS FOR RADIOACTIVE MATERIALS TRANSPORT ACCIDENTS- A STATE PERSPECTIVE

Stephen L. Hermann
Motor Carrier Administrator
Arizona Department of Public Safety

ABSTRACT

Due to a lack of close contact in realistic exercise scenarios, federal and industry officials do not have an up-to-date understanding of state and local emergency response capabilities for dealing with radioactive materials transportation accidents, which could lead to unacceptably handled incidents with resulting injuries and liability.

Federal officials have devoted considerable resources to developing a radioactive materials transportation accident response structure which appears to be keyed to a "worst-case scenario." Due to lack of properly structured exercises, and coordination opportunities missed in the handful of relatively minor radioactive materials transportation accidents which do occur each year, these officials do not effectively interface with industry, state and local emergency response organizations and personnel. This perceived lack of emphasis from above has led to a less than desirable capability at the state and local level for dealing with these incidents. New OSHA requirements codified in 29 CFR Part 1910.120 may soon serve to aggravate the situation unless corrective action is initiated.

Federal, industry, state and local officials need to initiate efforts to strengthen the relationship which exists within the entire radioactive materials transportation emergency response hierarchy, to avoid improperly handled incidents.

INTRODUCTION

As Arizona's senior State-on-Scene Coordinator for hazardous materials emergency response, I am here to report to you my impression that all is not well. None of us at the industry, federal, state or local level are as prepared as we should be, and our coordination is poor. As the comic strip character Pogo once noted, "We have met the enemy and he is us."

Let me first discuss all of our perceived roles, then place radioactive materials in perspective, and see how we need to improve our emergency response capabilities. I will also cover some potentially troubling implications involved in the current interim final rule provisions of Occupational Safety and Health Administration (OSHA) rules in 29 Code of Federal Regulations (CFR) Section 1910.120.

I will then draw a few conclusions, and recommend that we all need to get busy and improve our emergency response structure.

FEDERAL ROLE

The federal role in routine, day-to-day hazardous materials emergency response operations is almost non-existent. There do exist well-trained U.S. Coast Guard Strike Teams on both coasts, and a handful of qualified U.S. Environmental Protection Agency federal On-Scene Coordinators. However, there is virtually no one to come and help out during the "fire and explosions" initial phases of the train derailments and trucking accidents, which occur every week somewhere in the country.

The current federal role involves assisting in providing access to information and resources through the National Response Center and the National and Regional Response Teams, and later making Coast Guard and EPA personnel and resources available for the clean-up. U.S. DOT's Research and Special Programs Administration has published a widely utilized response guidebook, but it is not a technical

document. Interestingly enough, things may be better in the radioactive materials initial response area, but if they are, it remains a well-kept secret.

We in the business are aware that by contacting U.S. Department of Energy's (DOE) regional Operations Offices, we can access trained technical teams. We are told that these teams are properly equipped, well trained, and prepared to come out and help us. However, I was once told there is an Easter Bunny.

I don't have a clue as to what happens when I call the Albuquerque Operations office and ask for help. I don't know how long they will take to arrive, and I don't know what our relationship will be once they get here. I don't know what their real legal jurisdiction is, and I don't know if they will be able to make all this clear as it should be under the pressures of a real-world incident.

STATE ROLE

When discussing the situation which exists within Arizona, I will assume that it is the same in most other states. Certainly Illinois is a little bit ahead of us in some areas, but many other states are a little worse off, so this is somewhat of a generic discussion, since I know there are parallels in most states.

The current Arizona Regulation Radiation Regulatory Agency (ARRA) used to be the old Arizona Atomic Energy Commission, and does those things which a state agency with responsibility in this field could be expected to perform. They also have an emergency response capability. But it too is about as well kept a secret as the formula for Coca Cola syrup. I'm sure most other police and fire agencies around the country don't have a hint as to the real emergency response capabilities of their state radiation agency.

I know from attending past seminars dealing with transportation of radioactive materials that there exists a widely varying level of emergency response capabilities across the United States. Each state has a different level of

funding for its radiation agency, and has assigned varying missions. Several states simply have no radioactive materials emergency response capability. Also, the ability of a state radiation agency to effectively respond changes over time as budget priorities shift, and personnel change. Also, equipment becomes obsolete or in need of expensive repairs, and some things just get misplaced.

Let me illustrate the functioning of state agencies by briefly noting two incidents—one involving tritium at a fixed site, the other a truck which caught fire on Interstate 40 with radioactive materials on-board.

The first incident was the American Atomics plant here in Tucson, which ended amid complex charges of contamination of property and the neighborhood, and state seizure of the facility. An emergency response coordination agency supervised decommissioning of the plant and movement of the remaining tritium and contaminated materials. There have been charges that the old Arizona Atomic Energy Commission which struggled with that incident was ill-equipped, allowed massive violations to exist, and was of little help in handling the emergency.

The second incident involved a truck with some tritium watch faces consigned to a Department of Defense (DOD) site. The truck caught fire on Interstate 40 in northern Arizona, and before you could say "mismanagement" three times, the commander of Kirtland Air Force Base was in-bound in a very expensive helicopter, and our local man was as good as accusing the DOD of smuggling atomic bombs. I and my department have to shoulder most of the blame for letting this one get out of hand. Although the state response was slow, the Radiation Regulatory Agency did arrive and help straighten out the mess.

LOCAL ROLE

Local police and fire organizations have realized for years that they have to prioritize their requirements, amidst competing departmental programs and budgetary constraints. Fine-tuning their ability to handle radioactive materials transportation incidents probably falls right behind practicing for a nuclear weapon to fall out of the sky. They may be better prepared for the latter event, because they've probably at least heard about the Air Force accidentally splashing some in, while regular radioactive transportation accidents are virtually unpublicized. We all know they occur, but by comparison with everything else, they are statistically non-existent, and we'll discuss this more a little later.

The capability of most local agencies is probably best summed up by the color of their instruments; that is to say, use "caution" when dealing with folks equipped with the old yellow Civil Defense devices. Most of this stuff is not really what we need at a radioactive materials transportation accident, since it was designed for post-atomic bomb detonation survey and detection work. Not only do most of the locals have less than state-of-the-art equipment, but they've probably forgotten how to put the batteries in, if they ever

took them out the last time someone inventoried or trained with the equipment.

Two incidents are illustrative of local preparedness—one happened a number of years ago in an unnamed major Arizona city, the other a few months ago just outside Phoenix in Tempe. For those of you not familiar with the ubiquitous civil defense big and little "pigs", they are lead shielded containers which transport the small gamma sources used to train radiological monitors to use the yellow instruments. The big pig can be locked, and contains the little pig, and the individual sources.

One of these containers fell off the back of a truck, the lock wasn't in place, and we ended up with sources all over an Interstate Highway. For hours no one knew what to do, so the freeway was closed, traffic was snarled for miles, and seven different agencies had the opportunity to embarrass themselves. Finally, after about four hours, the local emergency services director heard about the incident on the radio, drove over to the scene, picked up all the sources with his long-handled tongs, and everyone went home. Not pretty.

A few months ago a vehicle used to transport radio-pharmaceuticals was involved in a serious traffic accident in Tempe, Arizona. The police department knew the fire department had no capability, so they summoned state resources, who arrived on the scene within a few minutes, and properly assessed the situation. A quick survey was conducted by properly trained personnel from the state radiation regulatory agency using proper instruments, and the entire situation was resolved within an hour.

INDUSTRY ROLE

The role of industry in hazardous materials emergency response varies widely from jurisdiction to jurisdiction. The most successful agencies have a close working relationship with manufacturing, distributing, transportation and end-use firms. In other locations, well-meaning police and fire officials may not even let industry personnel onto the scene. There is too much wide variance to successfully categorize the current state of affairs, other than to note that generally industry isn't involved as they should be.

RADIOACTIVE MATERIALS IN TRANSPORTATION

Radioactive materials constitute less than one-tenth-of-one percent of all hazardous materials shipments, according to U.S. Department of Transportation data. Further, as a generality, radioactive materials are shipped in the strongest packages used for any category of hazardous material, and are prepared for shipment by personnel who are very good at what they do.

Most radioactive materials shipments are radio-pharmaceuticals which are going to shortly be injected, swallowed or inhaled by someone, and thus present very little hazard. They also usually are involved in short local trips to hospitals and clinics from a nuclear pharmacy. Most police

and fire departments don't even know they exist, their accident frequency is so small.

Highway route controlled quantities of materials, or other large source shipments, are so rare and uncommon that most emergency responders have never even seen a normal one and never will, much less be involved with an accident involving one. DOE-escorted nuclear weapons shipments are beyond the scope of this discussion.

RADIOACTIVE MATERIALS IN PERSPECTIVE

We realize that there have been numerous small spills and leaks of low-level materials involved in transportation accidents, and occasional spills of yellow cake or other bulk-type products. Bear in mind, however, that a U.S. DOT Type B package has never once leaked its radioactive contents in an actual accident. Thus, there is a perfect safety record for the types of radioactive materials shipments which most concern emergency responders. Knowing that this safety record is so good unfortunately has contributed to the complacency which is detracting from our current response capabilities.

It is probably just human nature to grease the squeaky wheel. If you never have to deal with something, it becomes very easy to ignore, and eventually forget about it. I'm afraid that's where most local and state emergency response organizations find themselves in regard to their ability to intelligently respond to radioactive materials transportation accidents--they've forgotten they even exist.

You'll note, by the way, that the subject of this paper is transportation accidents. This is purposeful, since this is the scenario in which there is no qualified, professional help immediately available to provide technical advice or take action. There are very few Health Physicists driving trucks. Technically qualified personnel are invariably available however at fixed facilities. Therefore, we will continue to only concern ourselves with transportation accidents.

STATE OF ARIZONA EMERGENCY RESPONSE PLAN

As with most governmental plans, the State of Arizona Hazardous Materials Emergency Response Plan is several times as thick as it should be, and most folks don't know what it contains. This plan provides that the Department of Public Safety law enforcement agency serves as the 24-hour-point of contact for hazardous materials incidents, and supplies the initial "fire and explosions" phase State-on-Scene Coordinator (SOSC).

The Arizona Radiation Regulatory Agency is tasked to provide technical expertise, and has primary jurisdiction for radioactive materials accidents. They will provide the SOSC to handle radiation-related incidents. And while that's all well and good, with the exception of several of us who do it every day, and a few guys on the largest fire departments in the state, no one else knows what the plan says.

Therefore, although we've got a good document, it's about as secret as the capabilities, jurisdiction and

equipment of those DOE people who will materialize after we call the Albuquerque Operations Office.

RADIOACTIVE MATERIALS EMERGENCY RESPONSE OPERATIONS (RERO) COURSE

The best training course in the country for responding to radioactive materials transportation accidents is put on by the Nuclear Regulatory Commission at Las Vegas and the Nevada Test Site. The Radiological Emergency Response Operations (RERO) course is outstanding, and utilizes the most realistic "hands-on" training exercises ever created for emergency responders.

Unfortunately, the course is very small, quotas are limited, and once a person becomes a graduate, he might as well also be handed his own personal black hole to step into. There is no follow-up, no coordination of future refresher training, or for opportunities to keep course graduates abreast of current developments. Therefore, even though this is truly the premier training course in the entire emergency response field, you can make a good case that it is largely wasted, and amounts to worrying about the color of your raincoat in a hurricane.

STATE CAPABILITIES ASSUMPTIONS

Admitting that problems exist in our own personal sphere is something that most people do not do well. Therefore, there is going to be a pronounced shortage of federal, state, local or industry officials who will immediately step forward and loudly proclaim, "You bet, things are even more screwed-up than you might think." But, of course, as in most areas of human endeavor, unless a problem is recognized and corrective action taken, it just gets worse. Therefore, things are probably worse than even we know.

Unfortunately, there are some very complex plans and planning documents which exist at the federal level, involving a number of federal agencies. They address major hazardous materials transportation accident concerns, but do not adequately address the federal-state-local-industry coordination problem that exists. These plans make the assumption that the state has an existing emergency response organizational structure and plan which is in place and functional. This assumption is obviously flawed, since many states do not even have a radioactive materials transportation accident emergency response capability.

OSHA 29 CFR PART 1910.120 IMPLICATIONS

A final factor which will impact on the emergency preparedness for radioactive materials involves the new OSHA requirements contained in 29 CFR Section 1910.120. There is a great deal of controversy in the field right now as to whether Congress ever intended many of these provisions to apply to police and fire personnel. In their current form as an interim final rule, the OSHA regulations prescribe dozens of new safety requirements dealing with planning, training, baseline physicals, incident command and a number of related issues.

These requirements are complex, extensive, and for many organizations so potentially prohibitively expensive

that there is talk of some agencies literally getting out of the hazardous materials emergency response business.

The current thinking among some response planners is that since the new regulations will make proper response so costly, that perhaps regional grouping of capabilities and mutual aid is the answer. Three or four small departments may not be able to afford the costs of new training, a complex medical surveillance program and equipment, but they can afford to each support a portion of a regional team.

Since these safety requirements are each day becoming more rigid and pervasive, and since the health physics implications of many radioactive materials are not as well understood among professionals as could be hoped for, there is a logical trend which may develop. It is predictable that some police and fire departments will make the management decision that they cannot meet the new OSHA requirements in all areas, and that radioactive materials is one field they will simply not address. If you don't do it, you don't have to equip and train to do it.

CONCLUSIONS

We thus find ourselves in an environment where the ability of federal, state, local and industry personnel to properly handle radioactive materials transportation acci-

dents is far from optimal. New strict OSHA safety requirements may further force some public safety agencies to avoid the radioactive materials transportation field altogether.

Federal, state and local agencies and industry have not trained together, have not coordinated their operations, and do not understand each others capabilities or limitations. As our society demands more complex manufacturing technologies, regular hazardous materials transportation incidents will become more complicated and frequent, and thus demand more attention from response organizations.

Police and fire hazardous materials professionals have found that when industry is closely involved with planning and training for, and managing, mitigating and critiquing incidents, things work smoother. It is only human nature that you work better with someone you know and trust.

Federal, state, local and industry officials need to recognize that a problem exists. We all need to initiate efforts to address the current lack of coordination, and to strengthen our relationship. If we fail to act, the potentially serious consequences of improperly handled radioactive materials transportation accidents may well cause unnecessary injuries and damage.