Radioactive materials security 2006

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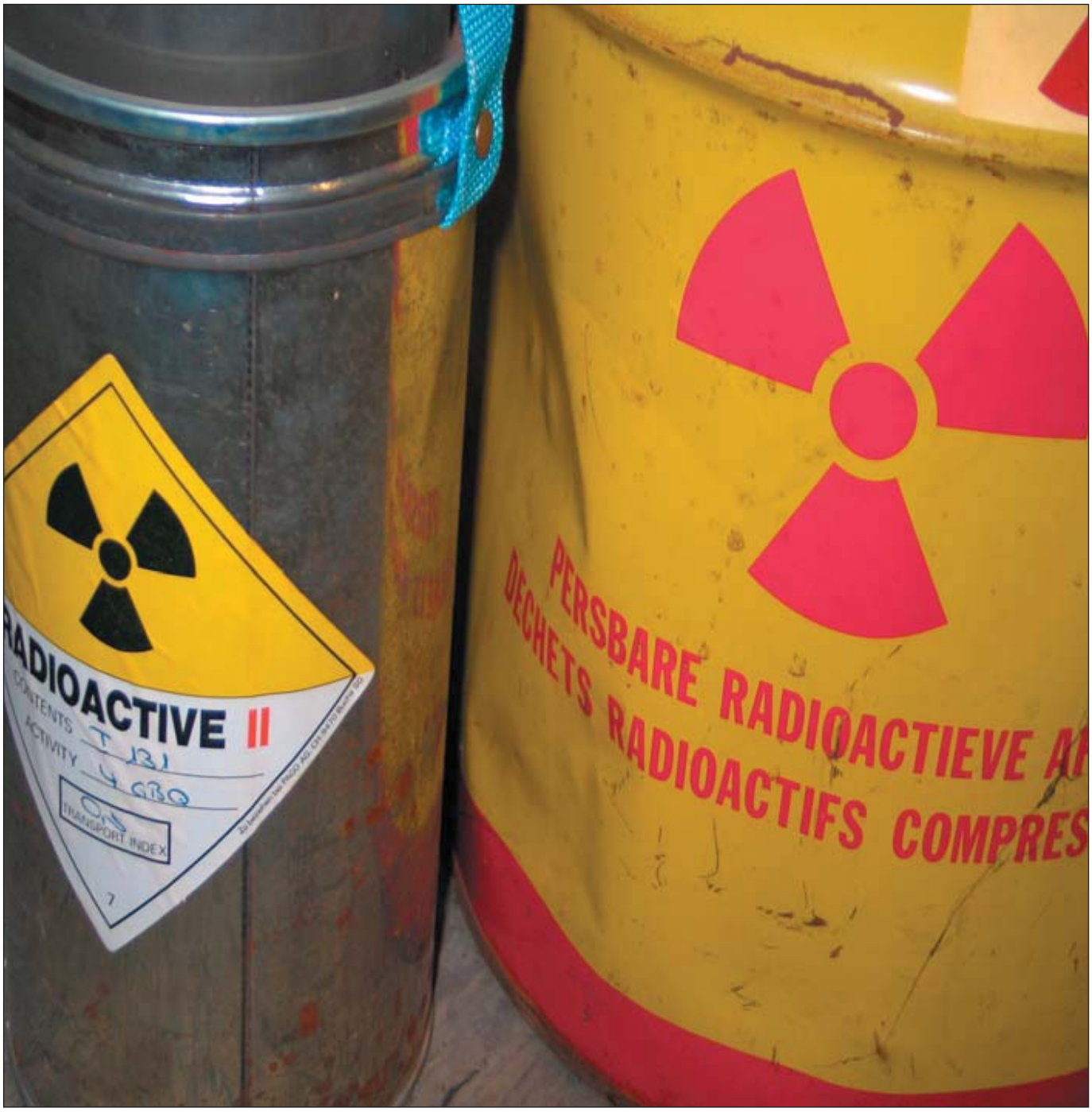

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In the December 2002 issue of *Well Servicing*, an article titled "HazMat Security After 9-11" described, in part, the past, present and future of hazardous materials security. The author encouraged cooperation between regulators and industry to prevent burdensome and unproductive security regulation of hazardous materials, particularly in our industry. In the past, industry representation, such as the AESC, has been actively involved. In the present, industry representation continues to work with government to keep commerce healthy while casting a watchful eye on the storage and transportation of hazardous materials. In the future — well, the future is here! And now a development in these security regulations affects a portion of our membership directly, but indirectly affects us all as we work together at the well site.

Historical background

In August of 2001, very few of us would have heard of the concept of a "Dirty Bomb" or in the euphemisms of government, a "**R**adiological **D**ispersal **D**evice or **RDD**." The other nuclear scenario involves a true nuclear device, "**I**mprovised **N**uclear **D**evice or **IND**," but that scenario involves fissile material in quantities not found in our servicing industry and for our purposes will not be discussed. The terrorist use of the RDD is a "Weapon of Mass Disruption," rather than the far more dangerous "Weapons of Mass Destruction or WMD" such as a true nuclear (IND), biological or chemical weapon. The RDD uses an explosive device to disperse radioactive material, or "RAM," upon the public in a crowded public area such as a downtown or a mall. Aside from the initial blast of the explosive device propelling the RAM, the resulting "salting" or "seeding" of the properties results in low-level radioactive contamination. This situation poses a varied degree of long-term health risks to the public from the radiation, depending on the quantity and/or quality and/or activity of the RAM, coupled with the resulting dilution of the original RAM by the explosive. Generally speaking, if the terrorists had sufficient quantity, quality and activity to make a RDD a long-term health hazard, they had enough to make an IND.

The real damage of the RDD (after the initial conventional explosive blast) is in the public's mind. In the months that followed the events of September 11, 2001, the concept of theft of radioactive material from industry to create the RDD started to rise to the top of public awareness, due in part to the media's extensive use of the term "radioactive." Also, the film industry's use of radiation to create monsters in popular movies helped develop the scary vision of radioactivity. And lastly, the very real health dangers from events like Three Mile Island and Chernobyl fueled a phobia of radiation and RAM. Simply stated, radiation and radioactivity are terms that create panic in the general public's mindset. This skewed public perception plays a part in developing regulations concerning radioactive material (RAM), particularly in transportation and security.

If a RDD went off, the affected area would carry a stigma that would restrict trade in the area, regardless of the actual health hazard initially or after remediation. Would you be inclined to shop at a mall that was an RDD contaminated site, even if the government assured you that the area was "clean?" Public reaction to other radiation events indicates that you probably would not. The result would be bankruptcy of the mall, resulting in millions or billions of dollars in losses in sales, property use and taxes. A Weapon of Mass Disruption does just that, disrupts massively. These RDD's are also cost-effective. A terrorist can buy low cost, low-level radioactive material like processed uranium ore, or "yellowcake," and economically disperse it explosively and "kill by fear" a mall or section of downtown with less than $50,000 invested. The RDD is a pure terror tool.

The present

Enter the radiological experts in our business, the nuclear loggers and tracer companies. Expertly trained, competent and certified personnel (regulations require very specific minimum professional radiological training by state or federally-approved trainers/courses with annual refreshers) coming to a well site near you. These professionals have a lot of security issues on their minds in the way they need to conduct business at home, on the road and at your well site. In 2003, the EPA and NRC, at the behest of the Department of Homeland Security, working with Departments of Labor (DOL), Defense (DOD), Energy (DOE), Commerce (DOC), and Health and Human Services (HHS), came up with requirements for augmenting existing security arrangements concerning radioactive materials.

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The 2005-2006 result has the governing federal and Agreement States' radiological protection agencies implementing increased security controls for certain radioactive materials, quantities and devices of concern listed by the Nuclear Regulatory Commission. The term "RAMQC" will be used to augment existing radiological security. These RAMQC sources are so listed because of their "attractiveness" for use by terrorists by the international community. The U.S. is adopting this same list and many of the security concepts of the international community. Some of these RAMQC sources can be found in use in the oilfield by several logging suites offered to customers. The experts in the field agree that discrete logging sources are not all that "attractive" individually. Although there are very specific requirements for RAMQC, there is a regulatory expectation for enhanced security of all radioactive materials, regardless of classification — and field inspections are starting to reflect that expectation.

Currently, our radiological service providers with RAMQC have to comply with issued orders from the NRC and, subsequently, the Agreement States for increased controls in six areas:

1. Written "Trustworthiness and Reliability" certifications of the radiological worker via background checks, work history verifications, resume checks, and such. for unescorted access to RAMQC. Uncertified radiological workers and members of the general public must be escorted.

2. Security and monitoring by the licensee during use, storage and transportation that includes mechanisms to immediately detect, assess and respond to unauthorized access to RAMQC, including a pre-arranged plan to engage local law enforcement agencies (LLEA) and reporting to the regulators with dependable communication systems in case of theft.

3. Pre-screening (by licensee) of the licensee's selected common carriers (including commercial hot shots) of security and monitoring requirements similar to the first two controls, plus package tracking, constant control and surveillance during transit, confirmation of arrivals, receipt, delays, and such. with licensee and NRC/Agreement States in case of non-performance and follow-up investigations and reports involving problems in transit. There are some additional security obligations for very large shipments of RAMQC that do not affect the normal field operations on a well site.

4. Physical security of RAMQC to prevent unauthorized removal in storage at the shop and field involving two minimum physical barriers to access and in the field, plus methodology to disable vehicles or trailers when not under the direct control and supervision of the licensee.

5. Documentation requirements for changes in certifications, physical security changes, security plan revisions, approved common carrier/hot shot

company discontinuations and reduction/elimination of RAMQC or termination of license for a period of not less than three years.

6. Development and implementation of a protection plan for the documentation/lists as "sensitive information" associated with the previous five topics.

By understanding the why, we can understand the importance of these regulations and can help these nuclear loggers by complying with their directions for on-site security and helping to keep a watchful eye out for suspicious activities involving hazardous materials, particularly radioactive materials and explosives.

In many ways, all of these requirements have been addressed in part by the existing Department of Transportation (DOT) and radiological safety regulations of the NRC and Agreement States. As non-radiological workers on a well site, you will probably notice the additional physical security noted in item 4 and more restriction to access to the areas around the logging unit or trailer that stores any radioactive material. Now you know why. By understanding the why, we can understand the importance of these regulations and can help these nuclear loggers by complying with their directions for on-site security and helping to keep a watchful eye out for suspicious activities involving hazardous materials, particularly radioactive materials and explosives.

In the future, it may become clear that these are not the only changes needed, only what have been implemented so far. The AESC and other industry groups like the Oil Field Services Industry Forum for Radiation Safety and Security (Forum) and Health Physics Society (HPS) that are involved with radiological safety are solicited by government to comment on proposed additional regulations concerning the security of radioactive material, particularly those used in oil and gas extraction. Significantly, comments from the members of these associations can influence decisions to implement a particular course of action concerning security of radioactive materials.

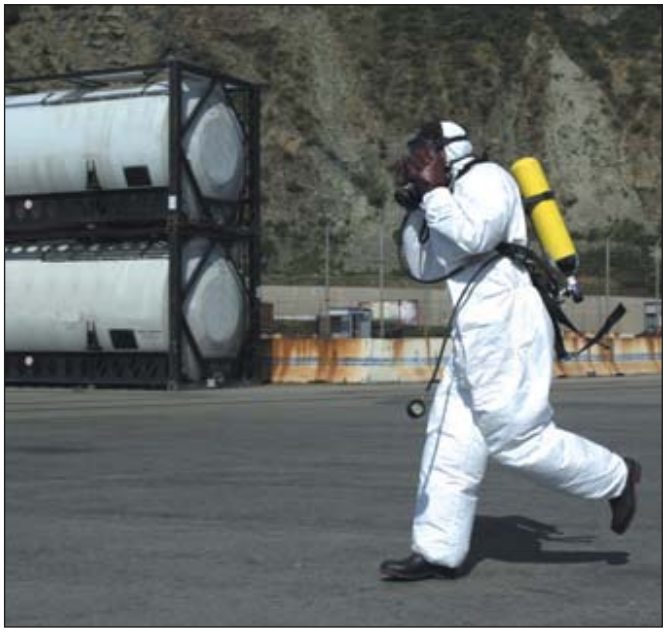
Recent comments to the NRC's Radiation Source Protection and Security Task Force from the AESC, the Forum (which comprises a large number of AESC members) and independent RAM users forwarded comments to apply practical approaches to proposed security regulations for radioactive material by a government that is generally unfamiliar with our industry's applications of RAM, but is very much familiar with the public's mindset concerning radioactivity and also privy to security threats that are not familiar to us or in the public domain. So, as the comedian Joan Rivers says, "Can we talk?"

The AESC and other involved organizations and individuals produced comments on topics under government consideration for additional regulations. Listed below are some of the general comments:

- Most concurred with the United States getting in line with international codes of conduct on radiological security issues and the associated lists of RAM that would be attractive to terrorists.
- The establishment of the Off-Site Recovery Project (OSRP) has been a step in the right direction for recovery of lost or stolen radiation sources, charging nothing for the service and offering to match unwanted sources with licensees that can use those sources rather than increase the proliferation of new sources to meet today's logging demands.
- On the topic of *Storage of radiation sources that are not used in a safe and secure manner*, most agree that existing regulations are adequate.
- On the topic of *the national source tracking system for radiation sources*, the general view was that licensees maintain records of the present locations of all Category 1 and Category 2 (common logging sources are Category 2 and 3) sources they

possess. Monthly reporting of all movements through web-based tracking system would be acceptable. Notification of recipient licensees when a source is sent, to insure their expectation and timeliness of receipt is all right. Reporting within 24 hours of Category 1 or Category 2 sources in transit that cannot be located by the freight carrier is also a good idea. However, detailed wellsite-to-wellsite tracking logging sources in Category 2 and many other logging and calibration sources in Category 3 pose little security enhancement and pose expensive and cumbersome clerical applications. Additionally, current security tracking is adequate and proven.

- Comment on *Import and export controls on radiation sources* to insure that recipients of radiation sources are able and willing to adequately control radiation sources that, generally speaking, existing rules are adequate
- On the topics of *Procedures for improving the security and control for use and storage of radiation sources and transportation of radioactive materials*, it was felt that adequate policies and regulations are in place at present to provide for control and security of these sources.
- *Background checks for individuals with access to radiation sources* is not a bad idea, but it is being duplicated by regulations governing similar security requirements for explosives (BATFE) and hazmat drivers under DOT. Essentially, the folks in government should talk to each other more and come up with one security check that would satisfy all of the agencies for an individual's security requirement.
- *Alternatives technologies* to logging sources is a good idea but limited to only a few select systems already available, and others are very cost ineffective when compared to general application chemical sources. The current inventory of sources and types is a result of industry's nuclear logging demands, and the well-evaluation techniques are based upon the current technologies. Alternative logging source research is not in the domain of the majority of current providers of these evaluation services, and government should fund any research and share the fruits of its labor with all industry.



Regulations require very specific minimum professional radiological training by state or federally-approved trainers/courses with annual refreshers.

Keep in mind that these are comments by industry and individuals and will not necessarily be adopted. The future of radiological safety and security has arrived and continues to evolve along with other aspects of Hazardous Material Security after 911. Cooperative effort with industry and government is essential to prevent regulators from operating in a vacuum and demanding compliance to ill-conceived rules, regulation and law. Thanks to all of you who engage in activities to work with government to "keep it real." If you would like to further understand this issue and other regulatory issues facing our industry before it becomes your problem, contact the AESC and get involved.