When Minutes Matter

Emergency Response in Today's Wireless World

Abstract
This paper discusses the current climate of emergency notification systems in North America and identifies some key elements that are essential for creating a successful emergency response strategy, with an emphasis on the oil and gas industry. It then goes on to explain how GeoAlert®, an emergency notification technology, overcomes some of the challenges facing the industry today and bridges the gap between theory and practice in emergency response planning.

Emergency Response: Everyday Applications and Limitations

In the unstable and tentative climate of today's world, emergency notification is making its way onto corporate and public agendas throughout North America. Communicating emergencies such as weather threats, terrorist threats or incidents, major roadway closures, health threats or industrial accidents, is key to public safety and the well being of society.

As reported by Communication News, "A national survey of U.S. residents, conducted by CDW-Government, suggests that emergency notification capabilities are not evolving with advances in technology and changing information-consumption habits. While wireless subscribers in America are at an all-time high, and one billion text messages are sent by U.S. residents daily, local governments still relay information largely via television and radio, which require access to electricity that may not be available during emergencies."[1] The Alberta Emergency Public Warning System, created in 1987, is no exception. This system is a joint public alerting initiative funded by the Alberta Government, warning Albertans via local radio and television networks of emergencies and instructing them to safety. In the age of wireless technology, this form of emergency alerting has become outdated and redundant. With the advancing role of telecommunications and the increased permeability of telecommunications technology into the lives of individuals, public warning systems need to be able to use these modern avenues to get important messages to the people who need to hear them, fast.

Emergency response systems and strategies are needed more now than ever before. With the rise of school shootings across the continent, universities and high schools are avidly investigating the

[1] N.a., "Emergency Communications Outdated," *Communication News* 25, no. 2 (2008), http://findarticles.com/p/articles/mi_m0CMN/is_2_45/ai_n24323527

use of mobile technologies as a tangible method of communicating emergencies. One of the leaders in this initiative is the University of Alberta, who is in the process of implementing a system that will utilize an array of methods to get messages out. In addition to text messaging and cell phone alerts, the university intends to use emergency telephones, video cameras and plasma television screens in high-traffic areas to display potentially life-saving messages.[2]

Thus far, however, universities have been unable to rely solely on wireless technology and effectively implement such a system. This is predominantly due to the voluntary nature of the program, resulting in poor sign-up numbers.[3] In addition, while these systems are gradually being put into place in universities throughout North America, the success rate of sending out thousands of messages in minimal time is yet to be determined in most instances.[4] Similar problems are being faced on a wider scale with communities and municipalities also relying on the voluntary sign-up of those who wish to receive alerts, making it difficult to target all of the necessary individuals in the geographical area at risk.[5]

Emergencies rarely occur in a vacuum; they are not isolated in their impact. Emergency response depends on the effective and immediate communication between the private (be it corporate or institutional), government and public sectors. Solidifying emergency response procedures through regulatory bodies would also go a long way in raising public awareness. According to the study conducted by CDW-Government mentioned above, the public's desire for emergency notification far outweighed their knowledge about any existing emergency notification programs in place, suggesting that increasing public involvement is critical. What is missing from some of the emergency notification programs currently being tested are the proper regulations and procedures to ensure the involvement and response of all involved. Industry, government, and the public need to work together to achieve safe and successful outcomes in emergency situations.

Emergency Response in the Petroleum Industry

The implementation of emergency response systems is well underway for many industries; however, the necessity of emergency response in the oil and gas industry has been overlooked, until recently. There is pressure on the oil and gas industry to take more initiative in emergency response planning, as there is mounting evidence that many ERPs do not translate over into practice when emergencies occur.[6]

Companies need to be prepared for worst case scenarios, such as the explosion of a plastics plant just outside of Edmonton that injured nine people, or the Toronto propane plant that exploded,

[2] Keith Gerein., "U of A prepares for the worst; New emergency alarm system will incorporate cellphones, e-mail and video," *Edmonton Journal*, 28 June 2008, B1.
[3] Peter Galuszka, "Diverse Issues in Higher Education," *Fairfax* 25, no. 2 (2008): 14.
[4] Janice Tibbetts, "Campus crisis plans rely on texts and email; Alert Systems. Tricky part is getting students to sign up for services," *The Gazette*, 25 Feb 2008, A2.
[5] N.a., "Nationwide cellphone alert system in the works," *USA Today*, 09 April 2008, 01B.
[6] Including the 2003 Chuan Dongbei natural gas disaster which killed 198 citizens and the October 2008 pipeline bombings in BC.

killing two people.[7] In addition, the recent acts of eco-terrorism that targeted pipelines in BC in October 2008 served as a potent reminder of how public safety can be so easily compromised. "We're very vulnerable in terms of oil and gas terrorism… around Calgary alone there's over 2000 unprotected sour gas wells," commented Mercedes Stephenson, an expert on terrorism and strategic studies.[8]

At one of the BC pipeline explosions, it took six hours after the explosion for local residents to be informed there was a pipeline leak.

"Many oil and gas operations are underway just miles from small rural communities and residents," said Dan Pacholik, VP of Operations for Cell Bridge Communications. "If an incident should occur, particularly at an unmanned site, instant notification is often a matter of life or death." As larger cities like Calgary continue to expand into rural territory, more and more residents are put at risk. "A plume from a natural gas leak will travel at the speed of wind and can quickly reach toxic levels, putting those in the surrounding area in danger," said Ian Dowsett of First Response Emergency Services, who works with plume dispersion modeling. At one of the BC explosions, it took six hours after the explosion for local residents to be informed there was a pipeline leak.[9] "Residents populating the surrounding area need to be notified and evacuated *before* levels turn toxic," Dowsett commented. "The importance of emergency response in such an instance cannot be overstated."

"A viable emergency management program demonstrates a firm's commitment to protect its workers, the public, and the environment. It complies with federal, state, and local regulations, and it protects stockholders from liability and litigation."[10] Such a program requires an emergency response plan to have the right measures in place to ensure that it can be carried out; this includes assessing risks, establishing procedures, designating roles, and carrying out environmental surveys to gage the potential impact of an emergency.

As explained by the Environmental Response Division of Ohio, "Emergency responders historically have not been provided with specialized training or assistance for handling spills and fires at oil field sites. This lack of training has led to potential safety hazards for responders and, in some cases, inappropriate response efforts."[11] When it comes to the technology to make this a reality, many emergency response plans fall short. "In terms of emergency response, the most valuable thing you can have is communication. You have to get people out immediately and make sure that [residents] know who they're going to be dealing with if something goes wrong," stated Stephenson.[12]

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[7] "Nine injured after explosion rocks plastics plant on Edmonton's refinery row." *The Canadian Press,* 25 October 2008. http://canadianpress.google.com/article/ALeqM5i8iQTMcDQwQ7E7Z0vo22jMxvFCAw
[8] M. Stephenson. Interview. *CTV News*, CTV.ca. 19 October 2008.
[9] "3rd pipeline explosion in northeastern B.C. in October." *CBC News*, 1 Nov 2008. http://www.cbc.ca/canada/british-columbia/story/2008/11/01/pipeline-gas.html
[10] J. White, J. Woodruff, D. Thompson, "Blowout control: response, intervention and management; documented blowout contingency plans," *World Oil 215*, (1994): 53-56.
[11] N.a., "Ohio Oil Field Emergency Response," (nd), http://www.ead.anl.gov/inetapp/dsp_inetsum.cfm?appsumid=27
[12] M. Stephenson. Interview by Bryanne Miller. Tape Recording. Calgary, AB., 27 October 2008.

"We have the technology at our fingertips. Why not use it to save lives?" – Dan Pacholik, Vice President of Operations, Cell Bridge Communications

Unlike other sectors such as education and municipalities that are actively implementing the technology, the private petroleum sector is struggling to find the right technology to meet and deliver the unique emergency response requirements of the oil and gas industry.

Couple this with the increasing emphasis by the media on social responsibility and it becomes obvious why emergency response planning and execution is fast becoming the number one priority of many companies. "Social responsibility and community involvement is a key issue for the oil and gas industry that needs to be proactively and systematically addressed,"[13] Industry Canada stipulates in its overview of the oil and gas industry. The social responsibility of corporations is of growing importance to the public, and emergency response planning is a major component of that.

GeoAlert®: It's About Time

Proper testing of emergency response systems, voluntary sign-up scenarios, public awareness, and a lack of regulatory requirements have all led to a very tentative climate in the area of emergency response. Companies such as Cell Bridge Communications Corp. are working hard to boost confidence in emergency response by building executable and reliable notification systems. Cell Bridge, out of Calgary, AB, recently released GeoAlert®, an emergency notification system that addresses the industry's shortcomings and demonstrates how regulatory bodies, the public, and the private sector can work together to save lives.

GeoAlert® is a secure web based GIS application that allows a licensed user to deliver a customized or canned message (or alert) to *a pre-defined database of recipients* in a time-sensitive manner. GeoAlert® can be managed and implemented from anywhere with a basic Internet connection, making it an ideal choice for rural jurisdictions, industry off-site, or field operations.

Dan Pacholik, Vice President of Operations at Cell Bridge, has years of experience and has seen the need for a technologically relevant emergency notification system to develop with the times. Using his background in communications and his training in information technology, Pacholik and his team fashioned GeoAlert®, a tested and industry-approved application. One of his first observations about the status of emergency notification was that many existing systems did not have the technological capabilities to alert residents in harm's way. "In a lot of the cases that we looked at, the Emergency Response Plan (ERP) as laid out in a company's communication plan was simply not logistically deliverable. There was so much bureaucracy around the ERP and so

[13] Industry Canada, "Canadian Technology in the Oil and Gas Industry — 5.0 Environment, Health and Safety, Stewardship," (2008), http://www.ic.gc.ca/epic/site/ogt-ipg.nsf/en/dk00095e.html#tphp

little being done about its real-time execution." In the face of mounting liabilities necessitating emergency notification and accountability, and the length of time taken to attain an approval for an ERP, Pacholik saw an opportunity to deliver a system that would overcome the hurdles facing pre-existing emergency response systems and improve safety in the process. "We have the technology at our finger tips. Why not use it to save lives?"

GeoAlert® provides minute by minute reporting so that controllers can quickly see who has and has not received the message within the predefined notification radius. Those that were reported as having not received the message can be identified and located immediately to ensure their safety. Also, GeoAlert® takes into account the aftermath of emergency response, tracking who received the message and providing a full report on the emergency notification time and outreach. By having a pre-assigned hierarchy of roles that correlate to the class of emergency being faced, along with multi-level administrative security, GeoAlert® ensures accountability in the response protocol.

Multi-party involvement was a must for Pacholik, and so when it became obvious that GeoAlert® was the perfect solution for the booming energy industry in Alberta, GeoAlert® was evaluated against the enforced emergency response directives set out by the Energy Resources Conservation Board (ERCB) for members of the oil and gas industry. GeoAlert® was modified to meet the specific requirements of the ERCB's *Emergency Preparedness and Response Requirements for the Petroleum Industry* and has even been adapted to work with the ERCB's compulsory infrastructure calculations software, ERCBH2S, which allows the user to calculate notification zones based on current inputs. **GeoAlert® is the only known technology to date that complies with the ERCB's directives.**

GeoAlert® also manages the involvement of the public, a crucial component of any emergency response system. "Without having the right contact information and a high level of public awareness, an emergency response system is useless," explains Ian Dowsett, President of First Response Emergency Services Ltd., a company that specializes in the development of emergency response plans from start to finish. "People are tired of dealing with multiple parties for data collection. First Response acts as the sole filter of public information for emergency purposes." Using the resources of companies such as First Response, Cell Bridge attains a near 100% participation rate of those within the emergency planning zone and is able to integrate the correspondence data accordingly. As a result, the aforementioned complications that result from voluntary signup systems can be mitigated and the requirements of a company's emergency response plan can be met.

GeoAlert's® application isn't limited to the petroleum industry. The system is fully customizable to any emergency response plan and Cell Bridge takes pride in its ability to adapt GeoAlert® to comply with the necessary regulatory requirements. Cell Bridge will be extending GeoAlert® to service the education sector, municipalities, public health, retail, fleet management and the entertainment industry. For emergency notification systems, GeoAlert® is the future.

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