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Determining Areas of Capabilities Expansion for Wyoming Regional Response Team 4

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CERTIFICATION STATEMENT

I hereby certify that this paper constitutes my own product, that where the language of others is set forth, quotation marks so indicate, and that appropriate credit is given where I have used the language, ideas, expressions, or writings of another.

Signed:_____

Abstract

Regional Response Team 4 was formed to respond to emergencies in southwestern Wyoming when local resources were not adequate. The problem was Regional Response Team 4 had not assessed the response capabilities of the regional response team against the response needs of the jurisdictions within the region. The purpose of the research was to determine areas of response capabilities expansion based on the response needs of the jurisdictions within the region. A descriptive methodology was used to answer the research questions: (a) What are the identified risks within Region 4? (b) What are the response limitations of the jurisdictions within Region 4? (c) What are the current response capabilities of Regional Response Team 4? (d) What response capabilities could Regional Response Team 4 develop to fill the needs of the jurisdictions in Region 4? Internet and written sources were utilized to gather information on risks and response capabilities. Interviews were conducted with emergency management and emergency response agencies within Region 4. The interviews were used to determine risks and response limitations in Region 4. Interviews were conducted with Wyoming agencies and regional response teams to examine response capabilities. Recommendations were made on response capabilities Regional Response Team 4 could develop.

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Introduction

For years, Wyoming worked towards the creation of regional response teams (RRT)s (Wyoming State Emergency Response Commission [Wyoming SERC], 2002d; 2002f; 2003c). The goal was to develop teams able to respond when an incident exceeded the capabilities of a local jurisdiction. A RRT would be deployed, with the proper resources and equipment to supplement the local emergency responders.

After the events of September 11, 2001, the threat of a terrorist attack refocused and expanded the RRT concept in Wyoming (Wyoming SERC, 2003c). Officials determined that well equipped and strategically located RRTs were the response solution to a terrorist incident and other potential incidents (Wyoming Office of Homeland Security [Wyoming OHS], 2006b; Wyoming SERC, 2002f). It was identified that the same response capabilities could be used for multiple types of incidents (Careless, 2004; Crowe, 2008; Wyoming OHS, 2006b; Wyoming SERC, 2002f).

Response capabilities are the equipment and resources available to respond to an incident (Biby, 2005; Carter, 2003; Foley, n.d.). The problem is Regional Response Team 4 (RRT4) has not assessed the RRT response capabilities against the response needs of the jurisdictions within the region. This could place the lives of responders and the public at risk should an incident occur.

The purpose of this research is to determine areas of response capabilities expansion for RRT4 based on the response needs of the jurisdictions within the region. A descriptive methodology will be used to answer the research questions: (a) What are the identified risks within Region 4?, (b) What are the response limitations of the jurisdictions within Region 4?, (c)

What are the current response capabilities of RRT4?, (d) What response capabilities could RRT4 develop to fill the needs of the jurisdictions in Region 4?

Background and Significance

Historically the role of a fire department has been to respond to fires and other emergencies (Barnes & Nacheman, 2006; Carter, 2003; Foley, n.d.). The jurisdiction the fire department serves has come to expect this service. The expectation is that the fire department will respond with the proper equipment, and resources to handle the emergency. As the nature of emergencies have changed the response capabilities have had to change (Barnes & Nacheman, 2006; Bevelacqua, Ingram, & Mussorfiti, 2005; Carter, 2003; Daniels, 2008; Foley, n.d.). What started for many jurisdictions as an agency able to respond to fires has grown into a response agency expected to respond to all hazards.

As risks have increased, many jurisdictions have had to assess what to do when the incident needs exceed response capabilities. Many jurisdictions look to the next level of government to provide the answer (Bevelacqua, et al., 2005; Department of Homeland Security [DHS], 2006; Vulpetta, 2002). This has led many government agencies to examine a RRT concept.

The concept of a RRT is to form a group of trained and equipped individuals to respond throughout a designated area (Bridges, 2007; Joint Commission on Accreditation of Healthcare Organizations [Joint Commission], 2005; Noll, 2007; Whitehead, 2004; Wyoming OHS, n.d.b; Wyoming SERC, 2008). The RRT would respond and supplement the efforts of local responders or provide specialized expertise and equipment.

A RRT could be formed for many reasons. The RRT could be formed to respond to different incident types including a hazardous material release, an act of terrorism, or even a

natural disaster (Bevelacqua, et al., 2005; Bridges, 2007; Noll, 2007; Whitehead, 2004; Wyoming SERC, 2003c). A RRT could also be formed to share response costs for specialized or seldom used equipment or to increase personnel availability.

Wyoming is the least populous state with a population of about 500,000 (United States Census Bureau, 2006; Wyoming SERC, 2006a). The majority of the population resides within roughly 98 communities (United States Census Bureau, 2007a; 2007b; Wyoming SERC, 2002a). Yet Wyoming is the tenth largest state with an area of approximately 100,000 square miles (Wyoming SERC, 2002a). The large area and small population creates a situation where response capabilities may be limited or there may be a long delay for additional resources.

In Wyoming, local response capabilities and resources vary widely between jurisdictions (Wyoming SERC, 2002a; 2006a). Many of the emergency response agencies have limited resources. Due to the wide range in personnel and capabilities in Wyoming, a high priority has been placed on emergency response preparation.

In 1989, the Wyoming Fire Chiefs Association began to look at a RRT concept to deal with the response needs at a hazardous materials incident (Wyoming SERC, 2002a; 2003c). The goal was to have trained and equipped responders able to assist local response agencies in the event of a hazardous materials release. Several times, state legislation was introduced to create RRTs but each time the legislation failed.

After the failure to pass RRT legislation in 2000 the proponents decided to place the RRT concept on hold until 2003 (Wyoming SERC, 2002b; 2002d; 2002f; 2003c). The events of September 11, 2001, changed that plan. The terrorist attacks acted as a wakeup call to much of the country (Bammer & Smithson, 2008; Bevelacqua, et al., 2005; DHS, 2008; Federal Emergency Management Agency [FEMA], 2002; Gordon, 2003; Joint Commission, 2005;

Lindell & Perry, 2003; Murphy & Williams, 2004; Parker, 2006). Wyoming realized it had to be able to respond effectively if a terrorist attack occurred (Wyoming SERC, 2002b; 2002d; 2002f; 2003c).

The RRT concept was again under consideration in Wyoming (Wyoming SERC, 2002b; 2002d; 2002f; 2003c). Prior to September 11, 2001, the focus was on response to a hazardous material incident. Now a new element of terrorism response was brought into the RRT concept.

In 2002, Wyoming officially formed RRTs (Wyoming SERC, 2003c). The goal was to have the RRT along with equipment and resources at an incident scene within two hours**.**

To be able to meet the two hours goal, Wyoming was divided into seven regions (Wyoming OHS, 2006b; Wyoming SERC, 2006a). After considering population and transportation routes, the regions were formed around existing political boundaries. Each region was created out of two or more counties. Region 4 was formed around the counties located in southwest Wyoming. Region 4 consists of Lincoln, Sweetwater, and Uinta Counties.

A host city was assigned to administer each of the newly formed RRTs (Wyoming OHS, 2006b; Wyoming SERC, 2006a). The host city would house the RRT resources and administer operations. Rock Springs was appointed as the host city for RRT4.

The focus on RRTs was also brought to the forefront by the availability of federal funding to create and equip the RRTs (Wyoming SERC, 2002b; 2003a). Initially funding for the RRTs was to be through Office of Justice grants. When Wyoming was not able to secure Office of Justice grants a DHS grant was secured.

Each of the RRTs were equipped with a response vehicle and trailer along with an initial supply of personal protective equipment (PPE), monitoring devices, and communication equipment (Wyoming SERC, 2006a; 2006c). Each RRT was also given a share of the DHS

grants. The money allowed each RRT to equip the response trailer and purchase additional equipment.

Each subsequent year the Wyoming OHS has provided a share of DHS grant money to the regions (Wyoming SERC, 2002b; 2008). RRT4 has used the DHS grant money to purchase equipment and resources. Throughout RRT4 has had little guidance in determining the equipment that should be purchased.

Since the inception of the RRTs, the sole funding stream has been DHS grants (Wyoming SERC, 2008). Over time, the money available to the RRTs has varied. There has been discussion of creating a permanent state funding stream but nothing has taken place.

In 2006, the Sweetwater County Bomb Squad was incorporated into RRT4 (Wyoming OHS, 2006a). Previously, the Sweetwater County Bomb Squad would respond throughout the western half of Wyoming as an independent response agency. While the bomb squad has added capabilities to RRT4 new equipment and resource needs must now be address.

The *Executive Analysis of Fire Service Operations in Emergency Management* student manual (2007, p. SM 4-34) explains, “If a hazard exists and a risk exists, then resources are required to abate the hazard and to minimize the risk.” The manual (FEMA, 2007, p. SM 4-34) goes on to explain, “Unavailable resources become the limiting factor.” Without the proper resources, a jurisdiction cannot effectively respond to an incident. If the local jurisdiction does not have the needed resources they can turn to the RRT. If the RRT cannot supply the needed resources the incident may not be resolved safely. The lack of resources could place both the responders and jurisdiction at risk.

One of the five operational objectives of the United States Fire Administration (USFA) is to “Help communities develop comprehensive all-hazard risk reduction plans” (USFA, 2003b).

The development and implementation of an effective RRT plays a key role in risk reduction and in turn supports the USFA operational objective.

Many jurisdictions have begun to look at regional response as a way to offset limitations in response capabilities (Bevelacqua, et al., 2005; DHS, 2006; Vulpetta, 2002). RRTs can increase the equipment and resource available during an incident.

While RRTs have been formed for many reasons, one approach is to create an all-hazards RRT (Abkowitz, 2008; Joint Commission, 2005). In an all-hazards approach, preparation and response is based on the potential hazards and risks within the region. Wyoming is one state that has taken an all-hazards approach to RRTs (Wyoming OHS, 2005).

The availability of an adequately equipped RRT will expand the capabilities of a jurisdiction and fill local capability shortfalls (Bevelacqua, et al., 2005; Canada, 2002; Creamer, 2005; Matason, 2001). With the added capabilities of the RRT, development of comprehensive risk and hazard planning can be completed. This is a key component for the local jurisdiction to meet the operational objectives of the USFA.

Literature Review

It is important for a jurisdiction to determine the incidents that could occur (McCormick, 2000; USFA, 2003a; Vulpetta, 2002). A jurisdictions needs to perform realistic hazard, risk, and capability assessments to formulate useable response plans.

A jurisdiction must consider the target hazards in the jurisdiction to determine potential risks (American Institute of Chemical Engineers, 2008; Bevelacqua, et al., 2005; Canada, 2002; Carter, 2003; FEMA, 2002; Kemp, 2008; Lindell & Perry, 2003; Vulpetta, 2002). Target hazards could include traffic routes, airports, government facilities, important facilities, military installations, hazardous materials storage facilities, water supplies, and utilities.

After the target hazards are identified the associated risks must be determine. A risk assessment is used to determine potential incidents (Bennett, 2007; Bevelacqua, et al., 2005; Canada, 2002; Carter, 2003; FEMA, 2002; Joint Commission, 2005; McCormick, 2000). A risk assessment is also used to identify potential incidents that are not associated with target hazards.

A risk assessment could be carried out for all types of risks including natural or manmade disasters (Bennett, 2007; USFA, 2003a). Several sources could be used to determine the risks within a jurisdiction. The historical data of the jurisdictions is one source (Abkowitz, 2008; Bennett, 2007; Bevelacqua, et al., 2005; Joint Commission, 2005; Schmidt, 2008). As previously discussed, the target hazard assessment is another source of risk information.

When assessing risks, the jurisdiction should consider natural disasters such as hurricanes, earthquakes, and tornadoes (American Institute of Chemical Engineers, 2008; Bennett, 2007; McCormick, 2000; Schmidt, 2008; Vulpetta, 2002; Wyoming OHS, 2006b). Incidents with the possibility of a large number of casualties, transportation accidents, and commonly occurring incidents should also be assessed.

In some instances, the risks could be associated with hazardous materials (American Institute of Chemical Engineers, 2008; Kemp, 2008; McCormick, 2000). The likelihood and potential severity of a hazardous materials incident should be examined. Large hazardous materials incidents happen only rarely (USFA, 2003a). Yet hazardous materials incidents result in over 200 deaths each year.

In Wyoming, the geography and industrial base creates a potential for a large range of hazardous materials incidents (Wyoming OHS, n.d.b; 2006b). An incident could occur at a facility or while in transport (Kemp, 2008; McCormick, 2000; Wyoming OHS, n.d.b).

According to the Wyoming SERC, there were 377 hazardous material spills reported in 2002 (Wyoming SERC, 2002c; 2003b). Of spills that occurred 83% were at fixed facilities while 17% occurred in transportation (Wyoming Office OHS, n.d.a; Wyoming SERC, 2002c). The same year, the Department of Environmental Quality reported that there were 10 hazardous material spills in Lincoln County, 36 spills in Sweetwater County, and 10 spills in Uinta County (Wyoming SERC, 2003b). Historically, the majority of hazardous materials incidents have been petroleum products (Wyoming SERC, 2002c; 2003b).

The Emergency Planning Community Right-to-Know Act requires facilities that maintain hazardous materials in quantities above designated limits to submit hazardous materials storage information (USFA, 2003a; Wyoming SERC, 2003d). The Wyoming SERC reported that in 2000 Lincoln County had 82 reporting facilities, Sweetwater County had 299, and Uinta County had 92 facilities (Wyoming SERC, 2002e; 2003d).

While most hazardous materials incidents occur at fixed facilities, preparation must also be made for transportation accidents (Redlener, 2006). In 2002, of the reported transportation accidents 84% occurred on roadways while 16% occurred on railways (Wyoming OHS, n.d.a).

A risk assessment should identify potential terrorist risks to the jurisdiction (FEMA, 2002; Gordon, 2003; Kemp, 2008). It is important to recognize that a terrorist incident could be a hazardous material response, a mass casualty incident, and a criminal act. A terrorist incident could also cross several jurisdictional boundaries.

In 2001, the Wyoming Counter Terrorism Commission assessed preparedness for a terrorist incident (Wyoming SERC, 2002a). The commission found that while Wyoming was not a likely target for terrorism the state must be prepared. In 2005, the Wyoming SERC reported

that a suspected domestic terrorist plot to damage gas pipelines was discovered (Wyoming SERC, 2006a). Other domestic terrorist plots have also been indicated in Wyoming (Daly, 2008).

There have been several suspicious white powder incidents at public buildings throughout Wyoming in 2009 (KGWN-TV, 2009; The Douglas Budget, 2009a; 2009b). At least one was of a threatening nature. To date all have proven to be harmless.

An act of terrorism or a release of hazardous materials is not the only incident that could overwhelm local response capabilities. All jurisdictions are vulnerable to a pandemic or natural disaster (Joint Commission, 2005).

Some natural disasters, such as floods or severe weather, allow time to prepare for the consequences (Abkowitz, 2008; Vulpetta, 2002; Wyoming OHS, n.d.b). Other natural disasters, such as earthquakes, could occur with little warning allowing no time for preparation. In both cases, a risk assessment would allow the jurisdiction to determine the capability needs prior to an incident.

A risk that must be considered is the availability of funding at the state and federal level (Canada, 2002; Joint Commission, 2005; Pasquale, 2006). As fiscal and political conditions change, the RRT administration must prepare for reductions in funding. Alternative funding sources may need to be identified or created (Crowe, 2008; Noll, 2007).

It is important to link response capabilities to the risks to minimize the impact of an incident (Lindell & Perry, 2003; National Fire Protection Association [NFPA], 2004).The risk assessment can play a significant role in determining the response capabilities for a jurisdiction (American Institute of Chemical Engineers, 2008; Canada, 2002; Lindell & Perry, 2003; Parker, 2006). The capability assessment will identify in advance the finances, equipment, and resources needed to respond to the identified risks (Biby, 2005; Parker, 2006).

Several issues may affect the capability assessment. First, the capability assessment must be realistic and examine existing capabilities as well as plan for future capability needs (Bevelacqua, et al., 2005). In some cases, new equipment and capabilities will have to be developed without complete knowledge of the threats and consequences from an incident.

The potential length of an incident must also be considered (Caldwell, Careless, & Natarajan, 2004). A jurisdiction must have the equipment and resources to extend beyond the initial response.

Whenever possible a jurisdiction should take an all-hazards approach to the capability assessment (Caldwell, et al., 2004; Noll, 2007). The equipment and resources should also enhance the daily operations of the jurisdiction (Markley, 2008). Standardization and interoperability is vital (Best, 2008; Lindell & Perry, 2003; Natarajan, 2004).

Redundancy in equipment and resources is needed whenever possible (Pasquale, 2006). In the event of a failure, replacement equipment will be needed.

In some cases, economic pressures may cause a jurisdiction to forgo resources (Abkowitz, 2008). The extent of available equipment and resources can differ significantly between jurisdictions (Lindell & Perry, 2003). No jurisdiction will have access to unlimited resources (Bevelacqua, et al., 2005).

Traditional hazardous materials incident response focused on product identification, rescue, hazard mitigation, and scene recovery (Bevelacqua, et al., 2005). The traditional hazardous materials risk was from industrial chemicals in storage, use, or transportation. The majority of the hazardous materials incidents involved small quantities of chemicals.

After the events of September 11, 2001 hazardous materials response changed. Hazardous materials response must now include a WMD consideration (Bevelacqua, et al., 2005;

Matason, 2001; Noll, 2007). A WMD is considered a device that may cause death or bodily injury through the release of chemicals, biological organisms, or radiation (Crimes and Criminal Procedure, 2009). A large number of victims and wide scale contamination must be considered. The hazardous material release may have been an intentional criminal act.

In 2002, the NFPA conducted a needs assessment of the fire departments in Wyoming (Hall & Karter, 2004). This needs assessment was updated in 2005 (Hall, Karter, & Whitney, 2006). Part of the needs assessments examined special incident scenarios (Hall & Karter, 2004; Hall, et al., 2006). In 2002 the needs assessments found that 37% of fire departments reported that response to a hazardous material incident with ten injuries was not a capability of the agency (Hall & Karter, 2004). This was down to 15% by 2005 (Hall, et al., 2006).

Jurisdictions must prepare for the possibility of a terrorist attack (Creamer, 2005; Pasquale, 2006). Today terrorism is a paramount concern and jurisdictions must obtain the equipment and resources to respond to an incident (Caldwell, et al., 2004; Markley, 2008). A study by the FEMA indicated that the equipment needed for a WMD response was one of the lowest readiness attribute of the states (FEMA, 2003).

To help responders prepare for a WMD, many jurisdictions have incorporated a bomb squad into their response capabilities (Best, 2008). Some jurisdictions have included the bomb squad in their initial response (Bevelacqua, et al., 2005; Wyoming OHS, 2006a). Others jurisdictions have created a tiered system in which the bomb squad is mobilized when needed (Best, 2008; Burke, 2006; 2007a).

To ensure the safety of the public a jurisdiction needs to be able to rescue those in danger. As the risks to a jurisdiction have changed the need for technical rescue capabilities have

increased (Barnes & Nacheman, 2006; Rigg, 2008). At a large rescue incident, such as a building collapse, the assistance of specialized technical rescue is critical (Caldwell, et al., 2004).

Another scenario the NFPA needs assessment examined was a building collapse with 50 occupants needing rescue. In 2002, the needs assessment found 44% of Wyoming fire departments reported they did not have the capabilities to respond (Hall & Karter, 2004). By 2005, the percentage was down to 10% (Hall, et al., 2006).

Many jurisdictions rely on the rescue knowledge of the responders for information and safety. At complex rescue incidents, a trained engineer can provide the technical knowledge needed by the incident commander (Barnes & Nacheman, 2006). The engineer can assist the responders in making strategic and tactical decision.

Water rescue is an important component of an all-hazards capability (Rigg, 2008). After Hurricane Katrina, many agencies have developed water rescue capabilities. Water rescue should include swift water, flood, and ice rescue capabilities as the environment dictates.

The 2005 NFPA assessment found that flood mitigation was beyond the capabilities of 35% of fire departments (Hall, et al., 2006). Only 11% of the fire departments had the local resources to respond effectively.

Objectives at an incident should include life safety, incident stabilization, property conservation, and crime scene management (Creamer, 2005). When assessing the capabilities for incident objectives life safety should be the top priority (Creamer, 2005; Murphy & Williams, 2004; Parker, 2006). To meet life safety objectives responders must be able to test the environment, determine the threats, and rescue trapped or injured parties (Murphy & Williams, 2004).

Communications is challenging at an emergency incident (Matason, 2001). Sharing of timely and accurate information is essential (Abkowitz, 2008). When multiple agencies respond to an incident, joint communications are needed to allow for safe incident mitigation (Caldwell, et al., 2004; Markley, 2008). If communications are not available, a loss of accountability and freelancing may occur (Caldwell, et al., 2004).

Communications is an issue among Wyoming response agencies. The 2005 NFPA needs assessment indicated that 70% of Wyoming fire departments did not have enough portable radios to equip all responders (Hall, et al., 2006).

Identification of hazards is an important incident operation (Best, 2008; Wyoming SERC, 2006d). In order for identification to take place, monitoring for gases, radiation, and surface contamination is needed.

Identification should be available for both entry and decontamination teams (Iannelli, 2006). Entry teams must be able to detect and identify substances in order to select appropriate PPE (Spies, 2003). Decontamination teams need to detect substances to ensure decontamination is effective.

Positioning monitors along the scene perimeter allows responders to ensure scene control is effective (Burke, 2007a; 2007b; Spies, 2003). In some instances, this may allow responders to minimize the control area size (Burke, 2007b).

No single piece of equipment will identify all substances (Spies, 2003). Identification is obtained through a systematic use of a combination of monitors and detectors (Burke, 2004; 2005; 2006; 2007a).

Once a material is identified, references must be available at the scene to determine the hazards of the material (Rudner, 2007). Online references can be useful but a computer and Internet access is needed. Written references are valuable but can become dated.

Proper PPE is necessary to protect responders from the hazards of an incident. The PPE used must be tested to withstand exposure to the hazards present (Caldwell, et al., 2004; Natarajan, 2004; Peden, n.d.; Vulpetta, 2002). In order to ensure responder PPE is capable of withstanding incident hazards the DHS has adopted national standards for PPE (DHS, 2009; Vulpetta, 2002). These standards set the design and protective requirements (Best, 2008; Careless, 2004; Natarajan, 2004; Peden, n.d.; Vulpetta, 2002).

Life safety is the top concern at an incident. For that reason, decontamination is paramount (Caldwell, et al., 2004; Creamer, 2005; Murphy & Williams, 2004; Parker, 2006). Every jurisdiction needs some type of decontamination capability. When determining decontamination setup it is important to look at the total resources needed (Iannelli, 2006).

Weather extremes must be taken into account in decontamination setup (Pasquale, 2006). Decontamination units may require portable shelters or heaters (Bevelacqua, et al., 2005; Burke, 2004; Caldwell, et al., 2004). Decontamination units may also require hot and cold water.

Incidents may require decontamination of large numbers of patients (Bevelacqua, et al., 2005; Caldwell, et al., 2004; FEMA, 2003). Decontamination must also have the capability to receive ambulatory and nonambulatory victims.

At major incidents, having rehabilitation facilities for responders is important (Caldwell, et al., 2004). A rehabilitation facility should provide protection from the environment in both hot and cold weather. The capability to provide food and drink is also needed. Rehabilitation facilities can also be used for medical surveillance.

Some agencies have developed their equipment inventory over years (Natarajan, 2004; Peden, n.d.; Vulpetta, 2002). Over time, standards have changed and equipment may no longer meet the latest levels of safety and preparedness. New equipment should be compliant with the latest standards.

To operate effectively the RRT must be able to interface with the other incident responders (Bevelacqua, et al., 2005; Iannelli, 2006; Pasquale, 2006; Rigg, 2008). The RRT can best accomplish this by working within the established incident command system. The *Wyoming RRT Operational Guidelines* establishes the RRT under the operations section of the incident command system (Wyoming OHS, 2006b). The guideline also directs RRT personnel to fill other incident command positions as required.

In summary, jurisdictions face several risks. Hazardous materials incidents could occur at a facility or while in transport (Kemp, 2008; McCormick, 2000; Wyoming OHS, n.d.b). The incident could be accidental or intentional (Bevelacqua, et al., 2005; Matason, 2001; Noll, 2007). A terrorist incident while unlikely may cause damage spanning large areas or several jurisdictions (Wyoming SERC, 2002a). The risk assessment should include planning for natural disasters as well (Abkowitz, 2008; Vulpetta, 2002; Wyoming OHS, n.d.b). A risk assessment prior to the incident allows the potential consequences to be determined (Abkowitz, 2008; Vulpetta, 2002; Wyoming OHS, n.d.b).

A comprehensive capability assessment could save lives and property at an incident (Biby, 2005; Murphy & Williams, 2004; Parker, 2006). The capability assessment should include priorities such as hazard identification, rescue, and mitigation (Pasquale, 2006).

A regional capability assessment should keep in mind the level of jurisdictional equipment and resources (Noll, 2007; Pasquale, 2006). The resources for a RRT should not only

be based on the needs the local jurisdictions but also the entire region. The regional capabilities assessment should focus on incidents that are expected to exceed local response capabilities.

The NFPA needs assessment indicated that jurisdictions in Wyoming have at least minimal response capabilities (Hall & Karter, 2004; Hall, et al., 2006). In some instances, the jurisdictions relied on outside assistance for capability needs.

Procedures

The initial literature review began at the USFA Learning Resource Center with a focus on books, periodicals, and other written sources. Due to limited literary information on Wyoming risks, capabilities, and RRTs the literature review examined a broad scope of literary information. Upon return to Wyoming, the literature review continued utilizing Internet and Wyoming specific sources.

After the literature review, the author began to collect data on the research questions. To begin the data collection the author conducted a telephone interview with the Wyoming OHS. At the beginning of the telephone interview, the author stated his affiliation, the purpose for the interview, and the research being conducted. During the interview, the research questions were posed and the topic was allowed to be commented and expanded on.

A research limitation was quickly identified. Much of the information that was evaluated is classified for homeland security reasons. To prevent the dissemination of classified or sensitive material target hazards and risks were identified only in a broad scope in the research paper. It was also recommended that specific RRT equipment and resources not be identified. The lack of specifics limited the information in the research paper but did not affect the information available during the research.

To research the first question addressing the risks within Region 4 the author conducted telephone interviews with emergency management representatives of the counties in Region 4. See *Appendix A* for a list of persons interviewed. Emergency management agencies were chosen based on their involvement with emergency planning for the jurisdictions (Wyoming SERC, 2006b).

At the beginning of each telephone interview, the author stated his affiliation, the purpose of the interview, and the research being conducted. The author then inquired if a risk assessment had been conducted. If a risk assessment had been conducted, the author inquired on the results.

The author followed the inquiry on the first research question with open discussion on the other research questions. The information gathered was used to create a list of potential risks within Region 4. See *Appendix B* for the risk data table. Due to security concerns, detailed target hazards and risks were not identified in this research paper.

A limitation to the research was the possibility that personal opinions or a lack of data could bias the risk assessment process (Canada, 2002). This research paper was not intended to be a hazard or risk assessment for Region 4 or the jurisdictions within the region. The research method gathered and compared the risk information identified by the jurisdictions within the region. The assumption was made that the jurisdictions were knowledgeable on the risk assessment process and had conducted proper risk assessments.

After obtaining risk assessment information the author focused on the research questions concerning capability assessments. A limitation in the research of capabilities was omitting the training needs for RRT4. Training requirements for Wyoming RRTs were examined in L. Armstrong's research paper *Establishing a Training Matrix for Regional Response Teams*

(2007). That research was not duplicated in this research paper. This research paper focused on categories of capabilities needed based on the risks and response limitations of the jurisdictions.

To answer the second research question pertaining to the response limitations of the jurisdictions the author conducted telephone interviews with jurisdictions within the region. See *Appendix A* for a list of persons interviewed. A questionnaire developed to determine capabilities of local jurisdictions was utilized to guide the interviews. See *Appendix C* for local capabilities questionnaire.

Selecting whom to interview posed several limitations to the research. Due to time constraints, the author was not able to interview all jurisdictions within the region. The decision was made to interview the larger jurisdictions within each county. These jurisdictions were expected to represent a higher level of response preparedness (Hall & Karter, 2004; Hall, et al., 2006). By identifying the limitations to these jurisdictions, the maximum response capabilities of Region 4 could be identified.

A further limitation was the determination to use fire departments to identify response capabilities. Fire departments were chosen based on the historic view that fire departments respond to most incidents (Barnes & Nacheman, 2006; Carter, 2003; Foley, n.d.).

Approximately 30 minutes were scheduled to conduct each interview. At the beginning of the interview, the author stated his affiliation, the purpose of the interview, and the research being conducted. During the interview the questions from the questionnaire were posed with the person interviewed allowed to freely comment. The information gathered was used to identify the capability limits of the interviewed jurisdiction. See *Appendix D* for local capabilities questionnaire results.

This research paper was not intended to be a capabilities assessment of the jurisdictions within Region 4. The assumption was made that the jurisdictions have identified their individual response needs. The research method collected and compared capability information from the jurisdictions within Region 4 to identify region wide capability limits.

The third research question on the current response capabilities of RRT4 was addressed through a review of the RRT4 equipment inventory. The review was used to identify the equipment and resources presently available. The results of the inventory was not included in this research paper by request.

Next, the author conducted interviews with the RRT4 administrator and bomb squad coordinator using a questionnaire developed to identifying RRT capabilities. See *Appendix E* for the regional capabilities questionnaire and *Appendix F* for the regional capabilities questionnaire results.

The information gained on the response capabilities of the jurisdictions and RRT4 were then compared. See *Appendix D* for local capabilities questionnaire results. See *Appendix F* for regional capabilities questionnaire results. The results were used to answer the final research question on response capabilities RRT4 could develop.

To identify other possible areas of response capabilities development the author interviewed representatives of other Wyoming RRTs. A questionnaire developed to determine RRT capabilities was used to guide these interviews. See *Appendix E* for the regional capabilities questionnaire and *Appendix F* for the regional capabilities questionnaire results. The questionnaire was sent by electronic mail to the coordinators of the RRTs. If a response was not obtained, the author attempted to conduct a telephone interview.

There was a limitation in the method used to identify response capabilities for Region 4. Only the areas covered by the questionnaires or commented on by those interviewed were identified for potential capability growth. There may be areas of capability development that were not identified by this research.

Results

The first research question examined the identified risks within Region 4. Wyoming OHS Operations Chief K. Lee indicated that target hazards had been identified throughout Region 4. It was requested that target hazards not be identified in this research paper. It could be revealed that target hazards were found at facilities and in transportation routes.

Sweetwater County Emergency Management Coordinator J. Valentine indicated that Sweetwater County had identified several target hazards. J. Valentine stated that target hazards could be found within the communities as well as rural areas. Uinta County Emergency Management Coordinator K. West noted that the target hazards throughout Region 4 were similar in nature and type.

The Wyoming OHS stated that in 2003 a state risk assessment was conducted under the direction of the DHS. The state risk assessment was utilized in the creation of the *Wyoming Multi-Hazards Mitigation Plan* (Wyoming OHS, n.d.a).

The storage and transport of hazardous materials was a widely identified risk. J. Hokanson of Lincoln County Emergency Management indicated that Lincoln County had not had a large hazardous materials incident. Both Sweetwater and Uinta Counties indicated that large hazardous materials incidents had occurred in the past. The Wyoming OHS indicated that from 2004 to 2009 the RRTs responded to 55 hazardous materials incidents.

Lincoln County indicated that oil and natural gas production were industries located throughout Region 4. The chemicals used in the production process as well as the products created were considered hazardous materials.

Besides traditional road and rail transportation, all counties had several large pipelines. These pipelines were identified as carrying petroleum products. Sweetwater County stated pipeline ruptures had occurred.

Sweetwater County indicated that besides hazardous materials risks explosives were a concern. Lincoln County indicated that there had been several explosives related incidents. The Wyoming OHS noted that from 2004 to 2009 RRT4 responded to 22 explosives incidents.

The Wyoming OHS indicated that Wyoming and Region 4 faced several potential terrorism and criminal threats. Threats ranged from individuals to organized groups. One threat was the potential of ecological or environmental terrorism. A large portion of Wyoming's economy and workforce was linked to petroleum and mineral extraction and processing. The Wyoming OHS warned that these industries could be a target for domestic or international terrorist groups. All counties in Region 4 considered terrorism a credible risk.

The Wyoming OHS identified several natural disasters of potential concern to the state. Earthquakes and flooding were natural disasters identified with a high probability of occurrence.

In 1995, a magnitude 5.3 earthquake was reported in Sweetwater County. This earthquake was linked to a mine collapse. Several fault lines have been identified in Uinta County as well.

Uinta County noted that there were several dams in the county. The risks of dam failure or flooding were concerns in Uinta County. Dam failure and flooding were also considered risks in Lincoln and Sweetwater Counties.

All counties considered severe winter weather incidents such as blizzards a high occurrence risk. Winter road closures were considered common. Some road closures lasted for days. Both Lincoln and Uinta Counties felt this would complicate RRT4 response.

Lincoln County stated that any incident that resulted in a large number of casualties was a concern. The limited hospital facilities and long transport time to other hospitals could put the public at risk.

The second research question looked at the response limitations of the jurisdictions within Region 4. In addition to the telephone interviews with emergency management agencies, interviews were conducted with jurisdictions in each county. See *Appendix A* for a list of persons interviewed.

Due to time constraints, the author was not able to contact Kemmer the largest city in Lincoln County. Only one jurisdiction was contacted in Uinta County after it was discovered the county had established a county fire protection district.

Uinta County had formed a fire protection district to address jurisdictional capability needs. All jurisdictions within the county were part of the fire protection district. In contrast, both Lincoln and Sweetwater Counties indicated that larger jurisdictions informally provided assistance to smaller jurisdictions and outlying areas.

The first capability area the questionnaire examined was resource typing. The purpose was to determine if jurisdictions had conducted resource typing. None of the jurisdictions had conducted resource typing.

The next capability area examined was if the jurisdiction utilized an incident command system. All jurisdictions utilized an incident command system at incidents.

All jurisdictions could establish and fill incident command positions at small incidents. For the research, a small incident was considered an incident where only the jurisdiction responded.

At large incidents the jurisdictions could not fill all incident command positions. For this research, a large incident was considered an incident that required multijurisdictional response or outside aid. The jurisdictions could fill most command positions but lacked the resources to fill multiple branch positions.

The third capability area examined animal rescue. The individual jurisdictions assisted in animal rescue but left planning and coordination to outside agencies. Lincoln County stated there was no agency to conduct animal rescue. Both Sweetwater and Uinta Counties noted the county conducted animal rescue.

All jurisdictions conducted hazardous materials response. The level of response capabilities varied for each jurisdiction. To examine hazardous materials response the questionnaire looked at broad capability areas. See *Appendix C* for local capabilities questionnaire.

All jurisdictions had literature to identify the risks of a hazardous material. The available included both printed and electronic sources.

The jurisdictions in Sweetwater and Uinta Counties had test equipment to identify unknown materials. Afton did not have test equipment available. Afton did not have radiological meters. The jurisdictions in Sweetwater and Uinta Counties indicated the state had supplied radiological meters to their jurisdictions.

All jurisdictions had monitors to detect and measure specific gases. The majority of jurisdictions did not have the capability to detect or measure unknown gases. Green River had some colorimetric tubes for detection of some gases.

The abilities of the jurisdictions to perform confinement and containment functions varied. For the research, confinement functions were considered actions to maintain a hazardous material in an area (Biby, 2005). Containment functions were considered actions to contain a hazardous material to the container. Most jurisdictions had some confinement and containment capabilities. Afton indicated private companies provided free assistance in these functions. None of the jurisdictions performed offloading or neutralization of a product.

All jurisdictions had PPE to enter a hazardous materials scene. The level of protection offered by the PPE varied. It was indicated that the state had provided Level B PPE to all jurisdictions.

All jurisdictions could perform decontamination for responders. All jurisdictions could perform decontamination of some victims. All agencies had limitations in decontamination of nonambulatory victims.

Decontamination of large numbers of victims was problematic for Afton and Green River. Both Rock Springs and Evanston had purchased mass decontamination systems.

It was identified that the Wyoming Department of Health provided hospitals with mass decontamination systems. These were to be used at a hospital for decontamination prior to treatment.

The fifth capability area examined the communications available. All jurisdictions had their own radio frequencies. At multiagency incidents, the jurisdictions utilized the state mutual

aid frequency. All jurisdiction dispatch centers had the jurisdiction frequencies and the state mutual aid frequency.

All jurisdictions had enough radios for initial responders. Evanston did not have enough radios for all personnel.

Lincoln County considered the purchase of a mobile command vehicle. Both Sweetwater and Uinta Counties had purchased mobile command vehicles.

The sixth capability area examined who provided medical response. In Lincoln County, medical response and transportation were provided by a county response agency. In Uinta County, medical response was part of the fire protection district. In Sweetwater County medical response and transport was provided by private companies. The Rock Springs Fire Department also provided first response to medical emergencies.

All jurisdictions used the Sweetwater County Bomb Squad for explosives response. Evanston had made agreements with Hill Air Force Base in Utah for additional aid.

All jurisdictions indicated that search and rescue was conducted by a county search and rescue team. The role of the county search and rescue team was primarily rescue in a wilderness environment. Evanston had created a similar team for the jurisdiction.

The questionnaire examined the technical rescue capabilities of the jurisdiction. For the purpose of the research, technical rescue was considered rescue needing specialized equipment and resources (Caldwell, et al., 2004). All jurisdictions conducted vehicle extrication. Afton left other technical rescue to the county search and rescue team. Other jurisdictions either conducted the technical rescue or no agencies were available with the capabilities.

All jurisdictions had agreements with public works to obtain heavy equipment. As with hazardous materials response Afton had informal agreements with private companies to obtain equipment.

Both Evanston and Green River had water rescue capabilities. As with other rescue situations, Afton utilized the county search and rescue team. Evanston conducted swift water and flood rescue. Green River indicated that they had only prepared for swift water rescue.

Evanston had dive team capabilities. The other jurisdictions indicated the county provided dive team capabilities.

Lincoln County Emergency Management was examining the development of a community emergency response team (CERT) to supplement response capabilities. Both Sweetwater and Uinta County had a CERT in place.

The support capabilities of the jurisdictions were similar. All jurisdictions had the ability to fill air bottles. Only Evanston had a portable cascade system to fill air bottles at an incident. All agencies also could provide adequate emergency lighting.

Only Evanston indicated formal mutual aid or automatic aid agreements existed. These were part of the fire protection district agreements. The other jurisdictions indicated informal agreements existed for aid.

The questionnaire evaluated the capabilities to determine structural safety. None of the jurisdictions had access to a structural engineer to evaluate structural safety. Most jurisdictions did some preplanning of facilities. Evanston preplanned only certain target hazard facilities. Afton did no preplanning.

The number of personnel that each jurisdiction expected to respond varied. To provide a standard framework for the research response to a room and contents house fire was examined.

The number of personnel responding was higher for volunteer organizations. This was dependant on time of day and year. Regardless of the number of personnel, all agencies could maintain a backup team for responder rescue.

All jurisdictions had done preparations for natural disasters. The incidents a jurisdiction identified as the most probable had received the most preparation.

Evanston had looked at a partnership with the area mines and oilfield companies. Evanston felt these companies could supply specialized equipment and resources. Afton had made partnerships with several companies to provide resources. These companies provided aid in hazardous materials response.

To summarize the second research question the response limitations varied in Region 4. All jurisdictions provided some level of incident command at an incident. All jurisdictions had some hazardous materials response capabilities. Limitations were identified in the identifications of hazardous materials. Decontamination, confinement, and containment functions had limitations in all jurisdictions. Technical rescue capabilities also had limitations. Trench rescue and building collapse were capability limits for all jurisdictions.

The third research question examined the current response capabilities of RRT4. To answer this research question the author examined the inventory of RRT4. After obtaining the inventory, the RRT4 administrator and bomb squad coordinator were interviewed. A questionnaire developed to examine RRT capabilities was used to guide the interviews. See *Appendix E* for the regional capabilities questionnaire. See *Appendix F* for the regional capabilities questionnaire results.

The first area examined was if resource typing had been conducted. RRT4 had not been resource typed. The bomb squad had been typed by the Federal Bureau of Investigation.

Next, the questionnaire examined what role RRT4 should take in incident command. The RRT4 Administrator indicated that RRT4 should not take a command position at an incident. RRT4 personnel should be ready to fill support roles. The RRT should focus on the areas of safety, operations, and planning.

RRT4 did not have the capabilities to conduct disaster assessments, disaster claims, or rapid needs assessments. The administrator felt these were not the mission of the RRTs.

Animal rescue was another area that RRT4 did not have capabilities. RRT4 could provide personnel to support the mission. Coordination would have to be through another agency.

Hazardous materials incident response was the original mission of RRT4. The Administrator felt this was currently one of the strongest capabilities of RRT4.

To identify the risks of a hazardous material RRT4 had both written and computer based sources. Computer sources were available at the Rock Springs Fire Department. RRT4 did not have the capability to use Internet or computer sources on a scene.

RRT4 had access to several types of real time hazard analysis equipment. These test kits allowed identification of unknown substances at a scene. This equipment could also be used to determine if a substance was a credible biological threat. RRT4 could then send the substance to a lab in Cheyenne for positive identification. Several types of test paper and test strips were also available. RRT4 also had several radiological meters.

Monitoring for a hazardous atmosphere could be conducted for specific gases. Besides the gases listed in the questionnaire RRT4 could also monitor for ammonia and chlorine. See *Appendix E* for the regional capabilities questionnaire. Several monitors were available to allow monitoring of multiple areas at the same time. To identify unknown gases RRT4 had a colorimetric test kit. RRT4 also had monitors to detect for chemical warfare agents.

RRT4 had the capabilities to conduct most of the confinement and containment functions indicated in the questionnaire. See *Appendix E* for the regional capabilities questionnaire. Nonsparking tools were maintained to allow operations in a potentially flammable atmosphere. Several sizes and types of plugging and patching equipment were maintained to perform containment.

RRT4 did not typically conduct offloading or neutralization. These functions were left to a cleanup company. RRT4 would standby to oversee the operation and maintain safety.

RRT4 could provide decontamination for both responders and victims. To provide decontamination for large numbers of people RRT4 had a mass decontamination system. This system could decontaminate both ambulatory and nonambulatory victims simultaneously. To allow decontamination in all weather situations water heaters and shelter heaters were available.

The primary means of communication for RRT4 while responding was a satellite cellular telephone. Once on the scene RRT4 had programmable portable radios. RRT4 also had a radio compatibility system to utilize or link multiple radio frequencies.

RRT4 had limited medical capabilities. Equipment was limited to a defibrillator and some first aid supplies. Triage resources were also available. RRT4 had a veterinarian attached to the RRT but did not have equipment to supplement operations.

To operate in a potentially hazardous atmosphere the bomb squad could use PPE under the bomb suits. In addition the bomb squad robot could be outfitted with meters or monitoring devices to detect hazards.

The resources of the bomb squad are split between two response units. Each response unit had x-ray capabilities. Separately each response unit could mitigate a car size device. Together the bomb squad could mitigate a large vehicle size device.

Technical rescue capabilities were limited for RRT4. There were no resources to conduct high angle rescue, trench rescue, excavation rescue, structural collapse rescue, or vehicle extrication. RRT4 did not have access to a structural engineer. RRT4 did have the resources to conduct confined space rescue. RRT4 had not made formal arrangements to obtain excavation equipment. Water rescue or dive team capabilities had not been developed.

RRT4 had the equipment and resources to maintain operations exceeding 24 hours. Plans had been made to use the RRT trailers or decontamination tents to shelter personnel. One limit in operations was the lack of capability to fill air bottles at a scene. RRT4 used the Rock Springs Fire Department fixed air compressor to fill air bottles.

Scene lighting could be provided with several types of lights. In addition, RRT4 had several generators to run scene lighting or power electrical equipment.

The capabilities of RRT4 are limited at natural disasters. While preparations had been made for response most planning called for RRT4 to provide personnel.

In summary of research question three RRT4 had limited resources for medical response and technical rescue. The greatest capabilities were in response to explosives and hazardous materials incidents. These capabilities could be transferred to a terrorist incident.

The final research question examined the response capabilities RRT4 could develop. This research question was initially addressed during the jurisdiction interviews. See *Appendix A* for persons interviewed. At the end of each interview, the author asked what capabilities RRT4 should develop.

The Wyoming OHS stressed that the RRTs were developed to provide an all-hazards response to incidents that exceeded local capabilities. The RRTs should continually assess the risks and capabilities of their region to address the needs of the jurisdictions.

Green River, Evanston, Lincoln County, and Uinta County were unfamiliar with the current capabilities of RRT4. Evanston asked that RRT4 ensure the resources and capabilities of RRT4 were relayed to the jurisdictions. Lincoln County was concerned that RRT4 would have extended response times or be unable to reach the jurisdictions in the county. Afton felt the priority of RRT4 should be the hazardous materials response needs of the jurisdictions.

The author also examined the capabilities of the other Wyoming RRTs. A questionnaire was electronically mailed to the administrators of the RRTs. No reply was received from Regional Response Teams 5, 6, and 7. The Author then attempted telephone interviews. Due to time constraints, no results were obtained from Regional Response Teams 5 and 7. See *Appendix A* fore a list of persons interviewed.

A questionnaire was used to evaluate the RRT capabilities. See *Appendix E* for the regional capabilities questionnaire. The questionnaire was also used to evaluate the capabilities of the Wyoming National Guard Civil Support Team (CST).

The first capability area examined was if the RRT had conducted resource typing. Only RRT1 had conducted resource typing. The CST had not conducted resource typing.

The next capability area examined was the role the RRT should take in the incident command system. All RRTs felt personnel should be provided to fill incident command positions. The CST had been directed not to assume a command role. The CST would operate as a single resource under operations. All RRTs supported the safety position in incident command. Regional Response Team 3 (RRT3) supported the finance position. Two RRTs supported the other incident command positions as well.

None of the RRTs conducted damage assessments or claims. Two RRTs performed initial rapid needs assessments.

The RRTs and CST did not conduct animal rescue. Regional Response Team 2 (RRT2) indicated this was not a mission of the RRTs.

All RRTs had literature to identify the risks of a hazardous material. Besides printed material RRT2 and RRT3 had Internet and computer based sources available at a scene.

All RRTs had test equipment to detect and identify hazardous materials and environments. RRT2 did not have equipment to identify unknown gases.

The RRTs were asked if they could perform the same confinement and containment functions as the jurisdictions. See *Appendix C* for local capabilities questionnaire. See *Appendix E* for regional capabilities questionnaire. All RRTs could perform most of the confinement and containment functions. Regional Response Team 6 (RRT6) did not have the capability to perform neutralization. The CST indicated their primary mission was identification not confinement or containment of a substance.

All RRTs had resources to provide decontamination. Capabilities included decontamination of large numbers of victims and nonambulatory victims. The CST provided decontamination for team members only.

All RRTs had access to the state mutual aid frequency. All RRTs could use the frequency of the local jurisdiction at an incident. RRT2 had their own radio frequency. The CST had their own radio frequency and a system to link multiple frequencies. All RRTs except RRT6 had satellite cellular phones. Regional Response Team 1 (RRT1) did not have cellular phones. RRT1 also did not have enough radios to outfit all responders.

The sixth area questioned if the RRT could provide medical response. RRT1 did not provide any level of medical assistance. RRT2 did not provide basic life support. Only RRT3 provided advanced life support. Two RRTs and the CST provided triage support. Only RRT3

provided mortuary and veterinary support. RRT2 and RRT6 had a critical incident stress management group.

All RRTs had a bomb squad. In several areas of questioning, the RRTs did not list the bomb squad capabilities. All bomb squads did have robots and the majority had real time x-ray capabilities. The majority of bomb squads could provide the entry team with PPE. The CST stated that explosives disposal was not a mission of the CST.

All RRTs had some technical rescue capabilities. The majority of RRTs provided rescue from a confined space. Two of the RRTs provided resources for trench and excavation rescue. None of the RRTs or the CST were equipped to perform rope rescue, vehicle extrication, or structure collapse rescue. All RRTs had arranged to obtain heavy equipment. The CST had access to National Guard resources. Two RRTs performed water rescue. RRT6 had a dive team.

The RRTs could maintain operations for extended periods. All RRTs and the CST could maintain operations 12 to 24 hours.

The RRTs had most support functions examined. All RRTs could fill air bottles. Two RRTs could fill air bottles at a scene. All RRTs and the CST had portable lighting. Only RRT1 had access to a structural engineer. The CST did not have access to a structural engineer.

The RRTs were questioned on their preparation for natural disasters. All RRTs had prepared for response.

The final question looked at what capabilities RRT4 could develop. See *Appendix E* for the regional capabilities questionnaire. RRT6 indicated the RRTs needed to develop a more comprehensive all-hazards response. The RRTs needed to ensure that the equipment and resources enhanced the needs of the jurisdictions.

RRT2 indicated that the primary mission of the RRTs was hazardous materials and terrorism response. RRT2 indicated that future capabilities should expand to include urban search and rescue. RRT 3 echoed the opinion but indicated that expanded funding would be needed to meet the expanded capabilities.

RRT3 indicated that the RRTs did not have a working relationship with industries within the regions. These industries could be target hazards and risks that needed planning. The industries might also provide resources to the RRTs and jurisdictions.

The CST indicated the RRTs needed to interface with the CST. The CST could supply equipment and resources. These resources had to be requested through the state. As the state liaison, the RRT should request the CST early to aid in identification and mitigation.

Discussion

At an incident, the ability of the emergency responders to perform effectively is largely based on the availability and reliability of equipment and resources (Murphy & Williams, 2004). A jurisdiction with comprehensive response capabilities can minimize the loss of lives and damage from an incident (American Institute of Chemical Engineers, 2008; Canada, 2002; Lindell & Perry, 2003; Parker, 2006).

Prior to performing a capability assessment, the target hazards and risks must be identified (McCormick, 2000; USFA, 2003a; Vulpetta, 2002). Throughout Region 4, the target hazards and risks were found to be similar (Wyoming OHS, n.d.a).

A commonly identified risk was the storage, use, and transport of hazardous materials (Kemp, 2008; McCormick, 2000; Wyoming OHS, n.d.b). In Wyoming, the majority of hazardous materials incidents occurred at facilities. Most incidents involved petroleum products (Wyoming SERC, 2002c; 2003b).

Transportation of hazardous materials included roads, railways, and pipelines (Wyoming OHS, n.d.a; Wyoming SERC, 2002c). The research found these facts to be accurate in Region 4.

The NFPA conducted needs assessments on Wyoming fire departments (Hall & Karter, 2004; Hall, et al., 2006). One scenario examined was the ability to respond to hazardous materials incidents with multiple victims. The 2005 assessment found that 62.5% of fire departments would need outside resources for effective response (Hall, Karter, & Whitney, 2006). While not statistically accurate, the research conducted supported the need for outside resources.

Region 4 jurisdictions are limited in their capability to identify hazardous materials. Identification of hazards is an important incident operation (Best, 2008; Wyoming SERC, 2006d). Proper identification is needed prior to scene entry, rescue, or decontamination (Iannelli, 2006; Spies, 2003).

RRT4 was found to have a high level of hazard identification capabilities. One capability limit was the lack of Internet access at a scene. This limits access to computer-based resources.

An even higher level of identification capabilities is maintained by the CST. The CST can provide mobile identification and laboratory facilities. These resources must be requested through the state. The CST would have to respond from Cheyenne a travel time of several hours.

The jurisdictions indicated they could confine a hazardous material to an area. Containing the material depended on the actions needed. The jurisdictions lacked several capabilities to contain a material.

RRT4 could perform confinement and containment actions. If transfer or neutralization of a hazardous material were needed, RRT4 would oversee the operation for safety. An outside company or agency would be required to conduct the transfer or neutralization.

Victim safety at a hazardous materials incident was a priority (Caldwell, et al., 2004; Creamer, 2005; Murphy & Williams, 2004; Parker, 2006). Decontamination was essential for victim safety. The jurisdictions in Region 4 were limited in decontamination capabilities by the number of victims and types of injuries.

Each hospital had a mass decontamination system available. Use would be limited by the ability to transport victims to the decontamination site.

RRT4 could provide decontamination for both responders and victims. Decontamination could be conducted on multiple victims in various weather conditions.

The failure of equipment is always a possibility. In addition, multiple sources of identification should be used to confirmation a hazard (Pasquale, 2006). RRT4 had several types of equipment that had no backup or confirmation ability.

Terrorism response was considered one of the lowest readiness capabilities of the states (FEMA, 2003). While Wyoming is not a likely terrorist target, the interviews conducted show the expectation that RRT4 would be ready to respond if needed (Wyoming SERC, 2002a). The capabilities RRT4 developed for hazardous materials response supported the capabilities at a terrorist incident. These were found to be some of the strongest capability areas of RRT4.

Explosive devices continue to be an identified risk in Region 4. The jurisdictions used the Sweetwater County Bomb Squad for explosives incident response. The Sweetwater County Bomb Squad has been incorporated into RRT4 (Wyoming OHS, 2006a). The current capabilities of the bomb squad were found to be another strength of RRT4.

Natural disasters could occur with little warning (Abkowitz, 2008; Bevelacqua, et al., 2005; Lindell & Perry, 2003; Vulpetta, 2002; Wyoming OHS, n.d.b). The results could affect large areas and multiple jurisdictions. The natural disaster could leave trapped victims in need of

technical rescue (Barnes & Nacheman, 2006; Caldwell, et al., 2004; Careless, 2004; Rigg, 2008). Earthquakes and floods were identified as high probability risks in Region 4.

A 2005 NFPA assessment inquired if Wyoming fire departments could respond to a building collapse with a large number of trapped victims (Hall, et al., 2006). The assessment found that 57% of fire departments would need outside resources to respond. The research indicated that most jurisdictions were limited in technical rescue capabilities and would need outside resources for response.

RRT4 had limited capabilities for technical rescue. This was also true in obtaining heavy equipment or the technical expertise of a structural engineer. These could be needed at a structural collapse.

Communications were a commonly identified incident limitation (Hall & Karter, 2004; Hall, et al., 2006). The jurisdictions of Region 4 used the state mutual aid radio frequency for communications involving multiple agencies. This created a possible communications conflict on incidents. A single frequency does not allow for separation of tactical and command communications. This could create a situation where the radio frequency could become overloaded.

The equipment and resources of RRT4 have been split among several response units. Currently RRT4 has one satellite cellular phone. If multiple response units were sent to an incident, they would not be able to communicate among response units.

Medical aid to victims was limited from the jurisdictions and RRT4. All jurisdictions have medical transport agencies. Several jurisdictions indicated that transport time could be long. Medical monitoring and emergency aid for responders could complicate the situation.

Rehabilitation and support of responders is vital at an extended incident (Caldwell, et al., 2004). RRT4 has made plans for extended operations. Presently RRT4 cannot refill empty air bottles at a scene and would have to rely on local resources. If no resources were available, this could severely hamper the operational capabilities of RRT4.

Animal rescue is often an overlooked capability (Rigg, 2008). The planning and coordination of animal rescue was left to the counties by most jurisdictions. RRT4 had a veterinarian but no plans on how best to use this expertise.

Much of Region 4 was rural or suburban with limited equipment and resources (Wyoming SERC, 2002a). The use of a formalized incident command system could minimize scene confusion and maximize effectiveness (Creamer, 2005). The ability for a jurisdiction to fill incident command positions drops as the incident size increases. RRT4 indicated that personnel needed to be available to support incident command.

In summary, the initial focus of RRT4 was hazardous materials incident response (Wyoming SERC, 2002a; 2003c). The research indicated that hazardous materials response was still a primary risk and capability limit in Region 4. The all-hazards mission of RRT4 was complicated by the possible need for technical rescue and support at an incident. Technical rescue was a capability that few jurisdictions effectively developed. Incident command support was another areas jurisdictions could require aid. Animal rescue was an area where jurisdictions had done little preparation.

Recommendations

Based on the results of the research, the author made recommendations to expand the response capabilities of RRT4. At a large incident, it is imperative that all responders work together. The best way to accomplish this is through a formal incident command system. The

first recommendation is that RRT4 should ensure personnel are available to fill needed incident command positions. RRT4 personnel should be capable of filling roles in operations, planning, and safety. RRT4 should also have trained personnel available to provide recommendations to the incident command staff. While RRT4 may not need to develop a formal incident command team, the concept is worth exploring. If an incident command team were developed a state team rather than a regional team may be more appropriate.

RRT4 is also the conduit to further state and federal resources. For this reason, RRT4 should have personnel ready to act as a liaison between agencies.

The bomb squad has become an important operational group in RRT4. Continued support and growth is needed for this capability. Due to training and operational requirements bomb squad personnel are limited to law enforcement. The author recommends that RRT4 provide personnel to support the bomb squad. This would free bomb squad personnel to focus on their primary response mission.

The bomb squad is a relatively new operational group in RRT4. Continued integration is needed. The author recommends that the bomb squad director be appointed as an assistant RRT4 administrator. This will allow further support and streamlined mobilize for the bomb squad.

Many incidents identified by the jurisdictions in Region 4 could require technical rescue capabilities. While technical rescue covers a wide range of capabilities, RRT4 should begin to develop at least minimal capabilities.

Several incidents identified could result in structural collapse or trapped victims. While most RRTs interviewed indicated it is not viable to create an urban search and rescue team RRT4 should have some structural and trench collapse capabilities. Capabilities should be developed to conduct rescue of lightly trapped victims. It is also recommended that RRT4 develop capabilities

to locate trapped victims. These capabilities could save valuable time in a collapse scenario where resources that are more capable have been requested. RRT4 could provide the foundation for later arriving resources to build upon. This could save time and lives at an incident.

A rescue scenario could require the use of heavy equipment. It is not practical for RRT4 to and maintain heavy equipment. For this reason, RRT4 should work with the emergency management agencies to create an area resource list. In the event of an incident, RRT4 could then access local sources for heavy equipment.

It is also recommended that RRT4 actively recruit one or more structural engineers. The availability of a structural engineer to determine structural safety and give technical advice could be invaluable at several types of incidents.

Most jurisdictions indicated they had the capability to conduct high angle rope rescue. The recommendation is that RRT4 look at obtaining resources in this area. This would minimize the need to train on unfamiliar equipment especially at an incident where time is needed.

Rock Springs is host city for RRT4. While Rock Springs does not have a high need for water rescue, other jurisdictions indicated the need. The recommendation is that RRT4 develop water rescue capabilities. It is not realistic to expect RRT4 to be called to most water rescues because of response time constraints. It is possible flooding, dam ruptures, or other incidents may require RRT4 personnel to have water rescue capabilities. In addition, RRT4 personnel need a working knowledge of water safety to operate at these incidents.

Due to regional limitations in emergency medical care, it is recommended that RRT4 examine the capability to perform triage prior to bringing patients through decontamination. It would do little good to send all incident victims through decontamination without prioritizing them. This could cause a bottleneck at the decontamination area and place viable lives at risk.

It is recommended that RRT4 develop and maintain the capability to provide medical monitoring and emergency medical care to responders. Medical capabilities vary throughout Region 4. It is important that RRT4 have consistent medical capabilities for response personnel. This would also free more local medical resources to provide victim care.

Communications need to be maintained between the scene, the RRT4 base, and responding RRT4 units. RRT4 personnel may respond in multiple vehicles further complicating communications. It is recommended that RRT4 obtain equipment to allow communications between responding units. Due to terrain and areas, satellite cellular telephone communications may be the most reliable source. Multiple telephones are needed to ensure all response vehicles can communicate. Prepaid cellular telephones may be a more economical option. The recommendation is that both options be investigated. In either case, common and known telephone numbers are needed. For this reason, personal cellular telephones are not practical.

RRT4 needs to ensure redundancy in the equipment and resources it has. This includes monitoring, identification, PPE, and decontamination. In addition, RRT4 should ensure it has the equipment to sustained operations. This would require batteries and charges for several pieces of equipment. The recommendation is for RRT4 to create or maintain redundancy in equipment for backup and confirmation of testing.

The standards for testing and design of equipment have changed since the inception of RRT4. It is recommended that future equipment purchases meet the latest edition of the appropriate standards.

Many jurisdictions indicated they were unaware of the abilities of RRT4. It is recommended that RRT4 make the capability assessment of RRT4 available to the jurisdictions

in Region 4. Much of this could be accomplished through ensuring RRT4 attends drills and tabletop throughout the region.

Financing expanded capabilities is an issue. The RRTs indicated that an expansion in areas of operation would require an increase in funding. The author recommends RRT4 prioritize response risks and capabilities. Funding can then be prioritized accordingly. In addition, RRT4 and the other RRTs should continue to work with the state and federal agencies to maintain funding. One area of funding RRT4 has not explored is other federal grant programs. RRT4 may be eligible for several grants such as the Assistance to Firefighters Grant. It is recommended that RRT4 pursue other grant funding streams.

In the past RRT4 has purchased equipment based on perceived risks to the region. The research conducted indicated that while subjective the capabilities developed are valuable. The author recommends that in the future RRT4 work with the emergency management agencies of the counties to maintain valid risk assessment information for the region. To maintain accurate information RRT4 should request the counties to provide update risk assessments. The risk assessment information should then be evaluated to ensure the needed capabilities addressed.

RRT4 has become a viable and useful asset to the region and state. The author feels that the recommendations provided would help RRT4 to move towards the all-hazards capabilities the Wyoming RRT creators envisioned.

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Appendix A

Interviewed Agencies and Groups

Group	Agency	Contact
State of Wyoming	Wyoming Office of Homeland Security	Kim Lee
	Regional Response Team 1	J. R. Fox
	Regional Response Team 2	Mark Young
	Regional Response Team 3	Dan Johnson
	Regional Response Team 4	Lyle Armstrong
	Regional Response Team 6	Chris Kocher
	Wyoming National Guard	Luke Reiner
Lincoln County	Lincoln County Emergency Management	Georgia Walton
	Lincoln County Emergency Management	Jay Hokanson
	Afton Fire Department	Brent Clawson
Sweetwater County	Sweetwater County Emergency Management	Judy Valentine
	Rock Springs Fire Department	Lyle Armstrong
	Green River Fire Department	Mike Kennedy
	Sweetwater County Bomb Squad	Anthony Niemiec
Uinta County	Uinta County Emergency Management	Kim West
	Uinta County Fire Protection District - Evanston	Don Bodine

Appendix B

Risk Data Table

Incident	Identified Risk in County		
	Lincoln County	Sweetwater County	Uinta County
Dam failure	X	X	X
Earthquake	X	X	X
Flood		X	X
Hazardous material release at a site	X	X	X
Hazardous material release in transport	X	X	X
Industrial site accident	X	X	X
Pandemic	X	X	
Pipeline rupture	X	X	X
Severe winter weather	X	X	X
Terrorist incident	X	X	X
Transportation accident	X	X	X
Utility failure	X	X	

Appendix C

Local Capabilities Questionnaire

Has your jurisdiction conducted resource typing?

Incident Command

Is incident command established at all incidents?

Can all needed incident command positions be filled?

- At small incidents (single agency response)?
- At large incidents (multiple agency response)?

Animal Rescue

Is there an agency to conduct animal rescue?

- Small (household) animals?
- Large animals?

Hazardous Materials

Who conducts hazardous materials response?

Does the team have the following identification materials?

- Books or software?
- Test equipment?
- Radiological meters?

Can the team monitors for a hazardous atmosphere?

- Oxygen?
- Flammable gases?

Carbon monoxide?

Hydrogen sulfide?

Detect or identify unknown gases?

Does the team have the personal protective equipment to enter a hazardous materials spill area?

Highest level of protection?

Are there enough suits for entry and backup teams?

Can the team perform the following confinement functions?

Damming?

Diking?

Absorption?

Does the team have nonsparking tools?

Can the team perform the following containment functions?

Plugging?

Patching?

Offloading?

Neutralizing?

Does the team provide decontamination?

For the entry team?

For victims?

Mass decontamination of multiple victims?

Nonambulatory victims?

Communications

Does your jurisdiction have its own radio frequencies?

Does your jurisdiction have a common frequency for all emergency response agencies?

Does your agency have individual radios for all responders?

Does your dispatch center have communications with all jurisdictional agencies?

Medical

Who provides medical response?

- Who provides transport?
- Are there plans for a mass casualty incident?
- Are there plans for triage?

Does your jurisdiction have a critical incident stress management group?

Bomb Squad

What bomb squad does your jurisdiction use?

Search and Rescue

Does your jurisdiction have a search and rescue team?

Who conducts technical rescue?

- Does team conduct high angle rope rescue?
- Does team conduct confined space rescue?
- Does team conduct trench rescue?
- Does team conduct building collapse rescue?
- Who conducts vehicle extrication?

Are there agreements for obtaining heavy equipment?

- Agreements with public works?
- Agreements with private sources?

Who conducts water rescue?

Does team conduct swift water rescue?

Does team conduct floodwater rescue?

Does your jurisdiction have a dive team?

Miscellaneous

Does your jurisdiction have the ability to fill air bottles?

On scene?

Can your jurisdiction provide portable scene lighting?

Does your jurisdiction have mutual aid agreements in place?

Does your jurisdiction have automatic aid agreements?

Does your jurisdiction preplan facilities?

Does your jurisdiction have access to a structural engineer?

Is your agency volunteer?

Is your agency full time?

On average how many responders does your agency have at a scene?

Does your initial response allow for a backup team?

Is your jurisdiction prepared to respond to natural disasters?

Is your jurisdiction prepared to respond to earthquake?

Is your jurisdiction prepared to respond to flooding?

Is your jurisdiction prepared to respond to severe winter weather?

Is your jurisdiction prepared to respond to tornados?

Is your jurisdiction prepared to respond to others (explain)?

Appendix D

Local Capabilities Questionnaire Results

Question	Jurisdiction			
	Lincoln	Sweetwater		Uinta
	Afton	Green River	Rock Springs	Evanston
Conducted resource typing?	No	No	No	No
Incident command				
Incident command established?	Yes	Yes	Yes	Yes
All incident command positions filled?	Most	Most	Most	Most
Small incidents?	Yes	Yes	Yes	Yes
Large incidents?	Most	Most	Most	Most
Animal rescue				
Conduct animal rescue?	No	County	County	County
Small (household) animals?	No	Yes	Yes	Yes
Large animals?	No	Yes	No	Yes
Hazardous Materials				
Hazardous materials response?	Agency	Agency	Agency	Agency
Have identification materials?	Yes	Yes	Yes	Yes
Books or software?	Yes	Yes	Yes	Yes
Test equipment?	No	Yes	Yes	Yes
Radiological meters?	No	Yes	Yes	Yes
Monitor for a hazardous atmosphere?	Yes	Yes	Yes	Yes
Oxygen?	Yes	Yes	Yes	Yes

Question	Jurisdiction			
	Lincoln	Sweetwater		Uinta
	Afton	Green River	Rock Springs	Evanston
Flammable gases?	Yes	Yes	Yes	Yes
Carbon monoxide?	Yes	Yes	Yes	Yes
Hydrogen sulfide?	Yes	Yes	Yes	Yes
Detect or identify unknown gases?	No	Some	No	No
Have protective equipment?	Yes	Yes	Yes	Yes
Highest level of protection?	Level B	Level A	Level A	Level A
Enough for entry and backup?	Yes	Yes	Yes	Yes
Perform confinement functions?	Some	Yes	Yes	Yes
Damming?	Yes	Yes	Yes	Yes
Diking?	Yes	Yes	Yes	Yes
Absorption?	No	Yes	Yes	Yes
Have nonsparking tools?	No	Yes	Yes	Yes
Perform containment functions?	Some	Yes	Yes	Some
Plugging?	Some	Yes	Yes	Some
Patching?	Some	Yes	Yes	Some
Offloading?	No	No	No	No
Neutralizing?	No	No	No	No
Provide decontamination?	Some	Yes	Yes	Yes
For entry team?	Yes	Yes	Yes	Yes
For victims?	Some	Yes	Yes	Yes

Question	Jurisdiction			
	Lincoln	Sweetwater		Uinta
	Afton	Green River	Rock Springs	Evanston
Mass decontamination?	No	Some	Yes	Some
Nonambulatory victims?	No	Some	Some	Some
Communications				
Own radio frequencies?	Yes	Yes	Yes	Yes
A common frequency?	State Aid	State Aid	State Aid	State Aid
Individual radios for all responders?	Yes	Yes	Yes	No
Dispatch have communications?	Yes	Yes	Yes	Yes
Medical				
Who provides medical response?	County	Private	Private	Agency
Who provides transport?	County	Private	Private	Agency
Plans for a mass casualty incident?	Yes	Yes	Yes	Yes
Are there plans for triage?	Yes	Yes	Yes	Yes
Critical incident stress management?	No	Yes	Yes	No
Bomb Squad				
Use Sweetwater Bomb Squad?	Yes	Yes	Yes	Yes
Search and Rescue				
Have a search and rescue team?	County	County	County	Agency
Who conducts technical rescue?	County	Agency	Agency	Agency
High angle rope rescue?	County	Yes	Yes	Yes
Confined space rescue?	County	Yes	Yes	Yes

Question	Jurisdiction			
	Lincoln	Sweetwater		Uinta
	Afton	Green River	Rock Springs	Evanston
Trench rescue?	County	No	Some	No
Building collapse rescue?	County	Some	Some	Some
Vehicle extrication?	Agency	Agency	Agency	Agency
Agreements for heavy equipment?	Yes	Yes	Yes	Yes
Agreements with public works?	Yes	Yes	Yes	Yes
Agreements with private sources?	Yes	No	No	No
Who conducts water rescue?	County	Agency	None	Agency
Swift water rescue?	Yes	Yes	No	Yes
Floodwater rescue?	Yes	No	No	Yes
Have a dive team?	County	County	County	Agency
Miscellaneous				
Have the ability to fill air bottles?	Yes	Yes	Yes	Yes
On scene?	No	No	No	Yes
Provide portable scene lighting?	Yes	Yes	Yes	Yes
Mutual aid agreements in place?	No	No	No	Yes
Automatic aid agreements?	No	No	No	Yes
Preplan facilities?	No	Yes	Yes	Some
Have access to a structural engineer?	No	No	No	No
Is your agency volunteer?	Yes	Yes	No	Yes
Is your agency full time?	No	No	Yes	No

Question	Jurisdiction			
	Lincoln	Sweetwater		Uinta
	Afton	Green River	Rock Springs	Evanston
How many responders at a scene?	18-20	15	9	25-35
Initial response allow for backup?	Yes	Yes	Yes	Yes
Prepared for natural disasters?	Some	Some	Some	Some
Earthquake?	Some	Some	Some	No
Flooding?	Yes	Some	Some	Yes
Severe winter weather?	Yes	Yes	Yes	Yes
Tornado?	No	Some	Some	No
Others (explain)?				

Appendix E

Regional Capabilities Questionnaire

My name is Carl Blanksvard a member of the Rock Springs Fire Department and Regional Response Team 4. I am currently in the National Fire Academy Executive Fire Officer Program. A requirement of this program is to complete an applied research project. I am conducting research on the capability needs of Regional Response Team 4. To determine possible future capabilities I have developed this questionnaire. I would like to include your RRT in the data. The questionnaire will take approximately one half hour to complete.

Please keep the following in mind. Does your RRT currently have the presented capability? Do you feel the capability presented is within the mission of the RRT?

Has your RRT conducted resource typing in accordance with NIMS?

Yes No Not in Mission Comments:

Incident Command

Should the RRT provide personnel to fill incident command positions?

Yes No Not in Mission Comments:

If so where should the RRT supply incident command support? (mark all that apply)

Unified Command Staff

Incident Commander

Safety

Operations

Logistics

Planning

Finance

Does your RRT conduct disaster assessment?

Yes No Not in Mission Comments:

Does your RRT conduct disaster claims?

Yes No Not in Mission Comments:

Does your RRT conduct rapid needs assessment (determine needs after a disaster)?

Yes No Not in Mission Comments:

Animal Rescue

Does your RRT conduct animal rescue?

Small (household) animals? Yes No

Large animals? Yes No

Hazardous Materials

Does your RRT have identification materials?

Books or software?

Yes No Not in Mission Comments:

Test equipment?

Yes No Not in Mission Comments:

Biological testing equipment?

Yes No Not in Mission Comments:

Radiological meters?

Yes No Not in Mission Comments:

Can your RRT monitor for a hazardous atmosphere?

Oxygen? Yes No Not in Mission

Lower explosive limit? Yes No Not in Mission

Carbon monoxide? Yes No Not in Mission

Hydrogen sulfide? Yes No Not in Mission

Identify an unknown gas? Yes No Not in Mission Comments:

Can your RRT perform confinement functions?

Damming? Yes No Not in Mission

Diking? Yes No Not in Mission

Absorption? Yes No Not in Mission

Does your RRT have nonsparking tools?

Yes No Not in Mission

Can your RRT perform containment functions?

Plugging? Yes No Not in Mission

Patching? Yes No Not in Mission

Offloading? Yes No Not in Mission

Neutralizing? Yes No Not in Mission

Overpacking? Yes No Not in Mission

Railcar leaks? Yes No Not in Mission

Can your RRT provide decontamination?

For entry team? Yes No Not in Mission Comments:

For victims? Yes No Not in Mission Comments:

Mass decontamination of multiple victims?

Yes No Not in Mission Comments:

Nonambulatory victims?

Yes No Not in Mission Comments:

Communications

Does your RRT have communications?

Cell phones?	Yes	No	Not in Mission
Satellite cell phones?	Yes	No	Not in Mission
Own radio frequency?	Yes	No	Not in Mission
State mutual aid?	Yes	No	Not in Mission
Use incident agency frequency?	Yes	No	Not in Mission

Does your RRT have individual radios for all responders?

Yes No Not in Mission Comments:

Does your RRT have spare chargers available?

Yes No Not in Mission Comments:

Does your RRT have spare batteries available?

Yes No Not in Mission Comments:

Medical

Is your RRT equipped to provide medical response?

Basic life support?	Yes	No	Not in Mission	Comments:
Advanced life support?	Yes	No	Not in Mission	Comments:
Triage?	Yes	No	Not in Mission	Comments:
Mortuary operations?	Yes	No	Not in Mission	Comments:
Veterinary support?	Yes	No	Not in Mission	Comments:

Does your RRT have a critical incident stress management group?

Yes No Not in Mission Comments:

Bomb Squad

Does your RRT have a bomb squad?

Yes No Not in Mission Comments:

Is your bomb squad equipped for hazardous entry? (mark all that apply)

Level C

Level B

Level A

Does your bomb squad have a robot?

Yes No Not in Mission Comments:

Does your bomb squad have real time x-ray?

Yes No Not in Mission Comments:

How large a device can your bomb squad render safe? (mark all that apply)

Small (briefcase size)?

Car size?

Medium vehicle (4,000 pounds)?

Large vehicle (60,000 pounds)?

CBRNE dispersal device?

Search and Rescue

Does your RRT conduct technical rescue?

Low angle rope rescue?	Yes	No	Not in Mission
High angle rope rescue?	Yes	No	Not in Mission
Confined space rescue?	Yes	No	Not in Mission
Trench rescue?	Yes	No	Not in Mission

Excavation rescue? Yes No Not in Mission

Building collapse rescue? Yes No Not in Mission

Extrication? Yes No Not in Mission

Does your RRT have an urban search and rescue team?

Yes No Not in Mission Comments:

Has your RRT arranged for obtaining heavy equipment?

Yes No Not in Mission Comments:

Does your RRT conduct water rescue?

Yes No Not in Mission Comments:

Swift water? Yes No Not in Mission

Flood water? Yes No Not in Mission

Does your RRT have a dive team?

Yes No Not in Mission Comments:

Miscellaneous

Can your RRT maintain operations for long periods?

3 to 6 hours? Yes No Not in Mission

6 to 12 hours? Yes No Not in Mission

12 to 24 hours? Yes No Not in Mission

Does your RRT have the ability to fill air bottles?

Yes No Not in Mission Comments:

On scene? Yes No Not in Mission

Cascade system? Yes No Not in Mission

Air compressor? Yes No Not in Mission

Can you RRT provide portable scene lighting?

Yes No Not in Mission Comments:

Does your RRT have access to a structural engineer?

Yes No Not in Mission Comments:

Is your RRT prepared to respond to natural disasters?

Yes No Not in Mission Comments:

Flooding?	Yes	No	Not in Mission
Earthquake?	Yes	No	Not in Mission
Severe winter weather?	Yes	No	Not in Mission
Tornado?	Yes	No	Not in Mission

Please indicate other areas where you feel a RRT should develop capabilities?

Appendix F

Regional Capabilities Questionnaire Results

Question	Regional Response Team					
	RRT 4	RRT 1	RRT 2	RRT 3	RRT 6	CST
Conducted resource typing?	No	Yes	No	No	-	No
Incident Command						
Provide personnel to fill ICS positions?	Yes	Yes	Yes	Yes	Yes	NIM
Where should the RRT supply ICS support?						
Unified Command Staff	-	-	-	Yes	Yes	NIM
Incident command	-	-	-	Yes	Yes	NIM
Safety	-	Yes	-	Yes	Yes	NIM
Operations	-	-	-	Yes	Yes	NIM
Logistics	-	-	-	Yes	Yes	NIM
Planning	-	-	-	Yes	Yes	NIM
Finance	-	-	-	Yes	-	-
Conduct disaster assessments?	No	NIM	NIM	No	NIM	NIM
Conduct disaster claims?	No	NIM	NIM	No	NIM	NIM
Conduct rapid needs assessments?	No	No	Yes	No	Yes	NIM
Animal Rescue						
Does your RRT conduct animal rescue?						
Small (household) animals?	No	No	NIM	No	No	NIM
Large animals?	No	No	NIM	No	No	NIM

Question	Regional Response Team					
	RRT 4	RRT 1	RRT 2	RRT 3	RRT 6	CST
Hazardous Materials						
Does your RRT have identification materials?						
Books or software?	Yes	Yes	Yes	Yes	Yes	Yes
Test equipment?	Yes	Yes	Yes	Yes	Yes	Yes
Biological testing equipment?	Yes	Yes	Yes	Yes	Yes	Yes
Radiological meters?	Yes	Yes	Yes	Yes	Yes	Yes
Monitor for a hazardous atmosphere?						
Oxygen?	Yes	Yes	Yes	Yes	Yes	Yes
Lower explosive limit?	Yes	Yes	Yes	Yes	Yes	Yes
Carbon monoxide?	Yes	Yes	Yes	Yes	Yes	Yes
Hydrogen sulfide?	Yes	Yes	Yes	Yes	Yes	Yes
Identify an unknown gas?	Some	Yes	No	Yes	Yes	Yes
Can your RRT perform confinement functions?						
Damming?	Yes	Yes	Yes	Yes	Yes	NIM
Diking?	Yes	Yes	Yes	Yes	Yes	NIM
Absorption?	Yes	Yes	Yes	Yes	Yes	NIM
Does your RRT have nonsparking tools?	Yes	Yes	Yes	Yes	Yes	NIM
Can your RRT perform containment functions?						
Plugging?	Yes	Yes	Yes	Yes	Yes	NIM
Patching?	Yes	Yes	Yes	Yes	Yes	NIM

Question	Regional Response Team					
	RRT 4	RRT 1	RRT 2	RRT 3	RRT 6	CST
Offloading?	Yes	Yes	Yes	Yes	Yes	NIM
Neutralizing?	Yes	Yes	Yes	Yes	No	NIM
Overpacking?	Yes	Yes	Yes	Yes	Yes	NIM
Railcar leaks?	Yes	Yes	Yes	Yes	Yes	NIM
Can your RRT provide decontamination?						
For entry team?	Yes	Yes	Yes	Yes	Yes	Yes
For victims?	Yes	Yes	Yes	Yes	Yes	NIM
Mass decontamination of multiple victims?	Yes	Yes	Yes	Yes	Yes	NIM
Nonambulatory victims?	Yes	Yes	Yes	Yes	Yes	NIM
Communications						
Does your RRT have communications?						
Cell phones?	No	No	Yes	Yes	Yes	Yes
Satellite cell phones?	Yes	Yes	Yes	Yes	No	Yes
Own radio frequency?	No	No	Yes	No	No	Yes
State mutual aid?	Yes	Yes	Yes	Yes	Yes	Yes
Use incident agency frequency?	Yes	Yes	Yes	Yes	Yes	Yes
Individual radios for all responders?	Yes	No	Yes	Yes	Yes	Yes
Spare chargers available?	Yes	Yes	Yes	Yes	Yes	Yes
Spare batteries available?	Yes	Yes	Yes	Yes	Yes	Yes

Question	Regional Response Team					
	RRT 4	RRT 1	RRT 2	RRT 3	RRT 6	CST
Medical						
Equipped to provide medical response?						
Basic life support?	No	NIM	No	Yes	Yes	Yes
Advanced life support?	No	-	No	Yes	No	Yes
Triage?	No	No	No	Yes	Yes	Yes
Mortuary operations?	No	No	No	Yes	NIM	NIM
Veterinary support?	No	No	Yes	Yes	No	NIM
Critical incident stress management group?	No	-	Yes	No	Yes	No
Bomb Squad						
Does your RRT have a bomb squad?	Yes	Yes	Yes	Yes	Yes	NIM
Equipped for hazardous atmosphere entry?						
Level C	Yes	-	Yes	-	Yes	NIM
Level B	Yes	Yes	Yes	-	Yes	NIM
Level A	No	-	No	-	Yes	NIM
Does your bomb squad have a robot?	Yes	Yes	Yes	Yes	Yes	NIM
Does your bomb squad have real time x-ray?	Yes	Yes	Yes	-	Yes	NIM
Device your bomb squad render safe?						
Small (briefcase size)?	Yes	-	Yes	-	-	NIM
Car size?	Yes	-	Yes	-	-	NIM
Medium vehicle (4,000 pounds)?	Yes	-	No	-	-	NIM

Question	Regional Response Team					
	RRT 4	RRT 1	RRT 2	RRT 3	RRT 6	CST
Large vehicle (60,000 pounds)?	Yes	-	No	-	-	NIM
CBRNE dispersal device?	Yes	-	No	-	-	NIM
Search and Rescue						
Does your RRT conduct technical rescue?						
High angle rope rescue?	No	No	No	NIM	No	NIM
Confined space rescue?	Yes	Yes	No	Yes	Yes	Yes
Trench rescue?	No	Yes	No	Yes	No	NIM
Excavation rescue?	No	Yes	No	Yes	No	NIM
Building collapse rescue?	No	NIM	No	NIM	No	NIM
Vehicle extrication?	No	NIM	No	NIM	No	NIM
Have an urban search and rescue team?	No	No	No	NIM	No	NIM
Arranged for obtaining heavy equipment?	No	Yes	Yes	Yes	Yes	Yes
Conduct water rescue?	No	No	No	Yes	Yes	NIM
Swift water?	No	No	No	Yes	Yes	NIM
Flood water?	No	No	No	Yes	Yes	NIM
Have a dive team?	No	No	No	No	Yes	NIM
Miscellaneous						
Maintain operations for long periods?						
3 to 6 hours?	Yes	-	Yes	Yes	Yes	Yes
6 to 12 hours?	Yes	Yes	Yes	Yes	Yes	Yes

Question	Regional Response Team					
	RRT 4	RRT 1	RRT 2	RRT 3	RRT 6	CST
12 to 24 hours?	Yes	Yes	Yes	Yes	Yes	Yes
Have the ability to fill air bottles?	No	Yes	Yes	Yes	Yes	Yes
On scene?	No	Yes	Yes	No	Yes	Yes
Cascade system?	No	Yes	Yes	No	Yes	Yes
Air compressor?	No	No	Yes	No	Yes	Yes
Provide portable scene lighting?	Yes	Yes	Yes	Yes	Yes	Yes
Access to a structural engineer?	No	Yes	No	No	No	NIM
Prepared to respond to natural disasters?	Yes	Yes	Yes	Yes	Yes	Yes
Flooding?	Yes	Yes	Yes	Yes	Yes	Yes
Earthquake?	Yes	Yes	Yes	Yes	Yes	Yes
Severe winter weather?	Yes	Yes	Yes	Yes	Yes	Yes
Tornado?	Yes	Yes	Yes	Yes	Yes	Yes
Other areas of RRT capabilities?						

Note. NIM = not the mission of the agency