

# Reassessing the Chemical, Biological, Radiological, Nuclear Response Enterprise

by Gary D. Mills

*We will bankrupt ourselves in the vain search for absolute security.*

—Dwight D. Eisenhower

During the last nine months, citizens throughout the world have observed momentous events that have added to a tumultuous global environment. Internationally, the ongoing conflicts in Afghanistan, Iraq, Yemen, and Syria are of great concern, notwithstanding the potential of future conflicts in North Korea or Eastern Europe. Domestically, Americans experience a front row seat as their elected officials wage partisan politics, while the country operates on a budget of continuing resolutions. On 20 January 2018, the U.S. government shut down for three days because Congress could not agree on a budget. The continued possibility of another government shutdown is unsettling, as agencies within the U.S. government continue to deal with an extensive list of domestic and international issues.

Among the challenges the U.S. faces is the prevalent threat of major catastrophes. As society becomes accustomed to expecting governmental support, the current model of responding to a catastrophic disaster with government agencies, including the military, appears routine. This expectancy has not always been the case. Disaster response has evolved over the course of 200 years, built with a goal of providing prompt assistance to communities in need. Historically, local authorities managed disasters and, in rare cases, state governments provided capabilities to manage the incident site. Generally speaking, the U.S. government lacked a systematic approach for disaster assistance and therefore handled incident response on a case-by-case basis. This pattern began to change in the early nineteenth century when the government recognized the need to address fires and diseases in the nation's large cities and townships. During this era, the U.S. government tended to pass *ad hoc* disaster legislation as disasters unfolded.

In 1803, Portsmouth, NH, experienced a chain of fires that strained local and state resources.

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In response, Congress passed the Congressional Act of 1803, which provided government relief to the merchants of Portsmouth affected by this disaster.<sup>1</sup> The progression of disaster legislation was painstakingly slow, as over a century passed before the emergence of disaster loans and the Flood Control Act of 1934.<sup>2</sup> Since then, many programs, plans, acts, orders, compacts, laws, and directives have been developed to improve the national disaster response system.

Disaster legislation in the U.S. undoubtedly improved efficiencies related to disaster response in most cases. In 1979, the U.S. government created the Federal Emergency Management Agency (FEMA)<sup>3</sup> that combined all relief agencies and programs under one agency. FEMA centralized disaster relief and mobilized resources for disaster response, coordinated efforts with states and local governments, and managed disaster-response activities. Notably, FEMA also created a policy of hazard-specific planning for a range of disasters including chemical, biological, radiological, and nuclear (CBRN) and catastrophic incidents.<sup>4</sup>

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According to joint doctrine, the characteristics of unusually elevated levels of casualties, damage, or disturbance that severely impacts the population, infrastructure, environment, economy, national morale, and government functions define a catastrophic incident.<sup>5</sup> Currently, an improvised nuclear device in a major U.S. city is among three other types of events considered domestically catastrophic. The other scenarios include a hurricane that reaches a level of category five along either the Gulf coast or Atlantic seaboard; an earthquake in the Cascadia subduction zone, New Madrid seismic zone, or within the state

of California; or a volcanic eruption of Mount Rainier.<sup>6</sup>

Following the 2001 attacks by al Qaeda, concerns in the U.S. over a terrorist nuclear attack increased and created a desired “necessity” for a heightened level of preparedness and security within the U.S. government. This requirement for preparedness and security was partially satisfied through directives and policy memoranda that forged the CBRN Response Enterprise (CRE). Today, the CRE continues to meet its statutory requirements as it remains resourced, trained, and equipped to respond to a CBRN incident as part of a whole of government approach. The two principal documents that stipulate the CRE’s requirements are Presidential Policy Directive Eight (PPD-8) and the Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 3125.01D, Defense Response to Chemical, Biological, Radiological, and Nuclear (CBRN) Incidents in the Homeland.<sup>7</sup>

President Barack Obama signed PPD-8 on 30 March 2011 while ordering the Department of Homeland Security (DHS) to produce a National Preparedness Goal (NPG). One purpose of the NPG was to define capabilities necessary to prepare for incidents that posed a high risk to the nation while using a whole of government approach.<sup>8</sup> PPD-8 also required DHS to create a national preparedness system consisting of guidance, programs, and processes that would enable the accomplishment of the NPG by the U.S. government. Lastly, PPD-8 directed a national preparedness report for evaluating U.S. capabilities in the areas of prevention, protection, mitigation, response, and recovery from threats and hazards.<sup>9</sup>

In addition to PPD-8, CJCSI 3125.01D gives added detail regarding requirements to the Department of Defense (DoD) in the event of CBRN incidents in the homeland. This document assigns the Commander of U.S. Northern Command (USNORTHCOM) the responsibility for CBRN response in the continental U.S.

Moreover, the instruction specifies four key responsibilities for USNORTHCOM. The first involves the planning and integration of support for CBRN incidents within the USNORTHCOM area of responsibility. The second is the planning for CBRN response operations in the homeland and support to civil authorities accounting for regional, state, and local-level activities. The third is confirmation of the readiness of forces assigned or allocated to USNORTHCOM for CBRN response operations. The final responsibility is to be prepared to respond to three nearly simultaneous, geographically dispersed, significant CBRN incidents, or one catastrophic CBRN incident within the continental U.S., Puerto Rico, U.S. Virgin Islands, and Alaska.<sup>10</sup> Documents such as PPD-8 and CJCSI 3125.01D provide guidance to DoD and the CRE, but are these enumerated responsibilities still valid? Or, is it fair to reevaluate the response history since 2001 and the “necessity” for a heightened level of preparedness and security?

Even though support to disaster response does not warrant a wholesale revision, it might be worthwhile and prudent to make changes to the CRE to increase efficiencies by reducing the force structure and amending the training program. To better understand this thesis, it is necessary to explain several areas relevant to the CRE including the operating environment and the key concepts of disaster response; the development of the CRE and its current composition and training requirements; analysis in the areas of threats, capabilities usage, and duplicate capabilities; and finally, the recommendations and conclusions to increase the efficiency of the CRE.

## The Operational Environment

Any planner that studies the operational environment in the U.S. will find that it is comprised of unique conditions and variables. Joint Publication (JP) 3-0, *Joint Operations* defines the operational environment as “a

composite of the conditions, circumstances, and influences that affect the employment of capabilities and bear on the decisions of the commander.”<sup>11</sup> This section provides an overview of elements that impinge on the operational environment, such as Defense Support of Civil Authorities (DSCA), the National Incident Management System (NIMS), the National Response Framework (NRF), and their basic components. Additionally, this section describes the key authorities and limitations, including the Stafford Act, Immediate Response Authority (IRA), Mission Assignments (MAs), *Posse Comitatus*, and the Insurrection Act. Knowledge of these elements will give a better understanding of the environment that the CRE will operate within when employed in response to a catastrophic incident.

**The U.S. military’s main contribution to this process is to support civil authorities...**

### *Defense Support of Civil Authorities*

PPD-8 reinforced the preparation for and response to threats posing a substantial risk to the national security of the U.S. Among such threats are “acts of terrorism, cyber-attacks, pandemics, and catastrophic natural disasters.”<sup>12</sup> The U.S. military’s main contribution to this process is to support civil authorities through the execution of four DSCA tasks: support for domestic disasters, domestic CBRN incidents, domestic civilian law enforcement agencies, and other designated support.<sup>13</sup> The purpose of military support is to “save lives, alleviate suffering, and protect property.”<sup>14</sup> Notably, laws and regulations govern the support provided by the military. DSCA consists of activities conducted in support of civil authorities as part of the whole of government response to catastrophic incidents.

## *National Incident Management System*

During a catastrophic incident, the associated complexities require the seamless cooperation of all involved participants. NIMS “provides a common, nationwide approach to enable the whole community to work together to manage all threats and hazards while applying to all incidents, regardless of cause, size, location, or complexity.”<sup>15</sup> NIMS guides all levels of government, nongovernmental organizations (NGO), and the private sector. This guidance enables all the stakeholders to work efficiently to prevent, protect against, mitigate, respond to, and recover from incidents. This management system additionally provides members throughout the community with a common vocabulary, systems, and processes to effectively provide capabilities to an incident.<sup>16</sup> NIMS captures three key concepts: mutual aid, the incident command system, and the dual status commander.

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Mutual aid refers to agreements between emergency responders to provide or lend assistance across jurisdictional boundaries. This assistance can include material, services, human resources, and equipment when a level of government requires specific resources.<sup>17</sup> Mutual aid is a fundamental component of preparedness planning for all hazards at every level of government. Effective mutual aid agreements are formalized through written documentation, address key issues, have administrative support, and complement one another to work cooperatively. Correctly built intrastate or in-state agreements, as well as interstate or emergency management assistance compacts between states, will foster collaboration and seamless integration among all of the relevant stakeholders.<sup>18</sup> A distinctive command system

will command, control, and coordinate the various levels of government that use mutual aid.

The Incident Command System (ICS) is a “standardized approach to the command, control, and coordination of on-scene incident management that provides a common hierarchy within which personnel from multiple organizations can be effective.”<sup>19</sup> All levels of government, NGOs, and private sector organizations use ICS. The system operates as either an incident command or unified command that is responsible for the overall management of the incident. The resolution of most incidents occurs at the local level of government, but there are major incidents that require assistance from the U.S. government, which possesses a wide range of capabilities and resources during a response to an incident. NIMS and ICS enable federal departments, agencies, and other levels of government to cooperate with one another while responding to a disaster.<sup>20</sup> ICS is not the only type of command and control for an incident, especially if the U.S. military is involved.

A dual status commander (DSC) is an active duty, commissioned officer in the U.S. Army or U.S. Air Force. A DSC can also be a federally recognized officer from the U.S. Army National Guard or U.S. Air National Guard that can exercise mission command of federal and state forces.<sup>21</sup> A DSC represents the command link involving the two distinct and separate chains of commands of the federal and state governments (title 10 and title 32). Even though the DSC may provide mission command of and receives orders from two separate chains of command, the federal and state chains of command must recognize the DSC’s authority in either a federal or state capacity. This authority includes the issuance of orders from the federal chain of command to federal military forces and the issuance of orders from the state chain of command to state forces.<sup>22</sup>

USNORTHCOM and U.S. Pacific Command can appoint DSCs in their respective areas of

operations only when the establishment of this form of mission command is necessary and suitable. The 2017 hurricane season provided a recent example of this, as DSCs were appointed for hurricanes Harvey, Irma, and Maria, which all occurred in the USNORTHCOM area of responsibility. Furthermore, the requirement for multiple DSCs may be necessary if a single state has simultaneous large-scale events, or if a geographically separated event affects multiple states, such as a potential New Madrid Earthquake.<sup>23</sup> NIMS and its concepts, such as mutual aid, ISC, and DSC, assist in providing a common approach that allows the disaster community to effectively work together, but “how” the nation conducts disaster response belongs to the NRF.

### *National Response Framework*

The NRF elucidates how the nation responds to a disaster using the whole of government approach. This framework offers guiding principles that assist organizations in providing a unified response to disasters and emergencies. The framework builds upon the NIMS, while aligning key roles and responsibilities at all levels of government, to include governmental agencies, NGOs, and private-sector organizations. Due to its flexibility and scalability, the implementation of the NRF at any level of government is carried out in response to a disaster scenario. The NRF is the response part of the larger national strategy that includes the goals of preventing and disrupting terrorist attacks, protecting the American people, protecting critical infrastructure and key resources, responding to and recovering from incidents, and continuing to strengthen the foundation to ensure long-term success.<sup>24</sup>

The NRF ensures that all response partners understand domestic incident response roles, responsibilities, and relationships to respond to an incident effectively. The essential premise of the NRF is to provide a structure for a nationwide

response policy and operational coordination for all types of domestic incidents. In addition, the NRF serves as a flexible and scalable framework for incident response based on NIMS principles.<sup>25</sup> The NRF doctrine establishes a vision through five key principles: an engaged partnership; a tiered response; a scalable, flexible, and adaptable operational capability; a unity of effort through unified command; and a readiness to act by providing the best response possible to the affected area.<sup>26</sup> Among these, the principle of tiered response deserves the most attention since it is relevant to resourcing. In addition to tiered response, a discussion about Emergency Support Functions (ESF) is pertinent to how resources and capabilities are organized during a disaster incident.

**The [National Response Framework] ensures that all response partners understand domestic incident response roles, responsibilities, and relationships...**

A tiered response is one of the guiding principles of the NRF and suggests that response efforts begin at the lowest level of government. Thus, when any level of government’s capacity is exceeded, the next level of government will step in and provide support. The key stakeholders in tiered response are local, tribal (Native Americans), state, and the federal governments. Additionally, NGOs (e.g., Red Cross) and the private sector (e.g., Walmart) cooperate with each level of government in responding to an incident.<sup>27</sup>

It is not unusual for most disasters to be managed from start to finish at the local level of government. However, some incidents may necessitate a larger response or assistance from entities such as the private sector or NGOs, while others may require the support of neighboring counties or state governments. Lastly, a small

<b>ESF #1</b>	Transportation	<b>ESF #8</b>	Search and Rescue
<b>ESF #2</b>	Communications	<b>ESF #10</b>	Oil and Hazardous Materials Response
<b>ESF #3</b>	Public Works and Engineering	<b>ESF #11</b>	Agriculture and Natural Resource
<b>ESF #4</b>	Firefighting	<b>ESF #12</b>	Energy
<b>ESF #5</b>	Emergency Management	<b>ESF #13</b>	Public Safety and Security
<b>ESF #6</b>	Mass Care, Emergency Assistance, Housing, and Human Services	<b>ESF #14</b>	Long-Term Community Recovery
<b>ESF #7</b>	Logistics Management and Resource Support	<b>ESF #15</b>	External Affairs
<b>ESF #8</b>	Public Health and Medical Services		

**Table 1. Emergency Support Functions**  
Source: Created by author, adapted from *Homeland Security, National Response Framework*, 2016, pp. 34–37.

number of incidents require broad support from the federal government through IRA or a sourced capability executing a specified scope of work contained in a MA or mission assignment tasking order.<sup>28</sup> The last few paragraphs provided an overview into the process of how levels of government respond to an event through the concept of tiered response. The following paragraphs will discuss how resources and capabilities are resourced for a response through ESFs.

During a catastrophic event, there are many capabilities and resources provided to an incident site, and it is crucial for the U.S. government to effectively organize these capabilities and resources for its response efforts. A construct known as ESFs provides the methodology for carrying out the federal response. Though not all incidents require either federal support or FEMA to activate departments and agencies supporting federal ESFs, the ESF methodology is an effective and efficient way to manage resources and capabilities provided by federal departments,

private-sector companies, and NGOs.

The 15 support functions depicted in the above table provide a venue for coordinating interagency support and effectively bringing functions together while in support of Stafford Act and non-Stafford Act disasters and emergencies.<sup>29</sup> For example, if a state requests assistance in conducting a mass evacuation operation, the Joint Field Office can request personnel and capabilities from ESF #1 (transportation), ESF #6 (mass care, emergency assistance, housing, and human services), and ESF #8 (public health and medical services) to best tailor capabilities and resources to accomplish the mission in an efficient manner.<sup>30</sup> If the required capability does not exist from federal or state agencies, the U.S. military can provide the capability through a MA.

The previous paragraphs have explained the response frameworks and their components, but the utilization of DoD capabilities during a disaster, while in support of civil authorities, has its own set of authorities and legal

limitations. Even though there are several laws, directives, and acts, the following five provide a solid understanding of the authorizations and limitations for the U.S. military while operating in a DSCA environment.

### ***Authorities and Legal Limitations***

The Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988 affords the legal authority to the federal government when providing U.S. military and other federal assets to assist state governments during a declared major disaster or emergency by the President of the United States. These declarations are triggered by a state governor's request for assistance due to an incident that overwhelms the requesting state's response capabilities.<sup>31</sup> The President may also declare an emergency without first receiving a gubernatorial request if the emergency involves an area of "primary federal responsibility," which means the "principal responsibility for response rests with the federal government because the emergency involves a subject area for which the United States exercises exclusive responsibility and authority."<sup>32</sup> The 2001 Pentagon terrorist attack, as well as the 1995 bombing of the Murrah Federal Building in Oklahoma City, exemplified this type of declaration.<sup>33</sup> In addition to the Stafford Act, the other type of authority that allows DoD capabilities to respond to a disaster is Immediate Response Authority (IRA).

IRA authorizes commanders or officials from components and agencies to take immediate actions by providing support and capabilities in response to requests from civilian agencies to "save lives, prevent human suffering, or mitigate property damage."<sup>34</sup> IRA is authorized when the providing military organization does not have the time to receive approval from its higher headquarters.<sup>35</sup> In the scope of IRA, it is not uncommon for military organizations and their respective local civilian community to establish guidelines regarding the processes of immediate

response through a memorandum of agreement or a memorandum of understanding to better ensure a prompt response, preventing confusion during incident response.<sup>36</sup> In principle, any activity that is not prohibited by law may be conducted during IRA to "save lives, prevent human suffering, or mitigate great property damage."<sup>37</sup> During IRA, military capabilities can only be utilized for up to 72 hours unless these efforts are providing lifesaving actions, in which case they can extend beyond 72 hours. It is also common for an event responded to under IRA to transition to a MA, especially if the duration of the response will exceed 72 hours.<sup>38</sup>

**[Immediate Response Authority] authorizes commanders or officials from components and agencies to take immediate actions...**

If a military capability is no longer engaged under IRA, then it requires an MA to employ resources to support civil authorities at an incident site. The lead federal agency can accomplish this through the issuance of three classifications of MAs. The first is known as a federal operations support (FOS) MA, which is a federal agency to federal agency support MA. An example of a FOS MA is when FEMA gives a MA to the U.S. Air Force to transport FEMA assets from one location to another.<sup>39</sup> The second type of MA is technical assistance, which provides expertise to a state or local jurisdictions when that state or local jurisdiction has the resources but lacks the knowledge and skills needed to perform the required activity.<sup>40</sup> The third is direct federal assistance, which are MAs that provide urgent capabilities (frequently DoD) to a state to "save lives, protect property, and to prevent human suffering."<sup>41</sup>

DoD operating under authorities such as the Stafford Act, IRA, and MAs are common, but

operating under legal limitations such as *Posse Comitatus* are not. The *Posse Comitatus* Act (PCA), 18 U.S. Code, Section 1385, established in 1878, ended the use of federal troops in the policing of state elections in former Confederate states.<sup>42</sup> The law stipulates that: “Whoever, except in cases and under circumstances expressly authorized by the Constitution or Act of Congress, willfully uses any part of the Army or the Air Force as a *posse comitatus* or otherwise to execute the laws shall be fined

**..the key takeaway regarding [the *Posse Comitatus* Act] for military leaders is to understand the restrictions and limitations of the law...**

not more than \$10,000 or imprisoned not more than two years, or both.”<sup>43</sup> There are several exceptions to the law, but the following four are noteworthy. First, National Guard forces are exempt from the law when operating under Title 32 state authority, which means that soldiers and airmen remain under the mission command of the governor while giving them “the ability to act in a law enforcement capacity within their own state or an adjacent state if granted by that states Governor.”<sup>44</sup> Second, the governor of a state in which a major disaster occurs may request the President to direct the Secretary of Defense (SecDef) to permit the use of resources for emergency work necessary for the preservation of life and property.<sup>45</sup> Third, the SecDef can provide forces in an emergency involving biological weapons, chemical weapons, or weapons of mass destruction.<sup>46</sup> Lastly, the President can use the armed forces to suppress insurrection and enforce federal authority in the midst of a rebellion or any other form of domestic violence.<sup>47</sup> Perhaps the key takeaway regarding PCA for military leaders is to understand the restrictions and limitations of

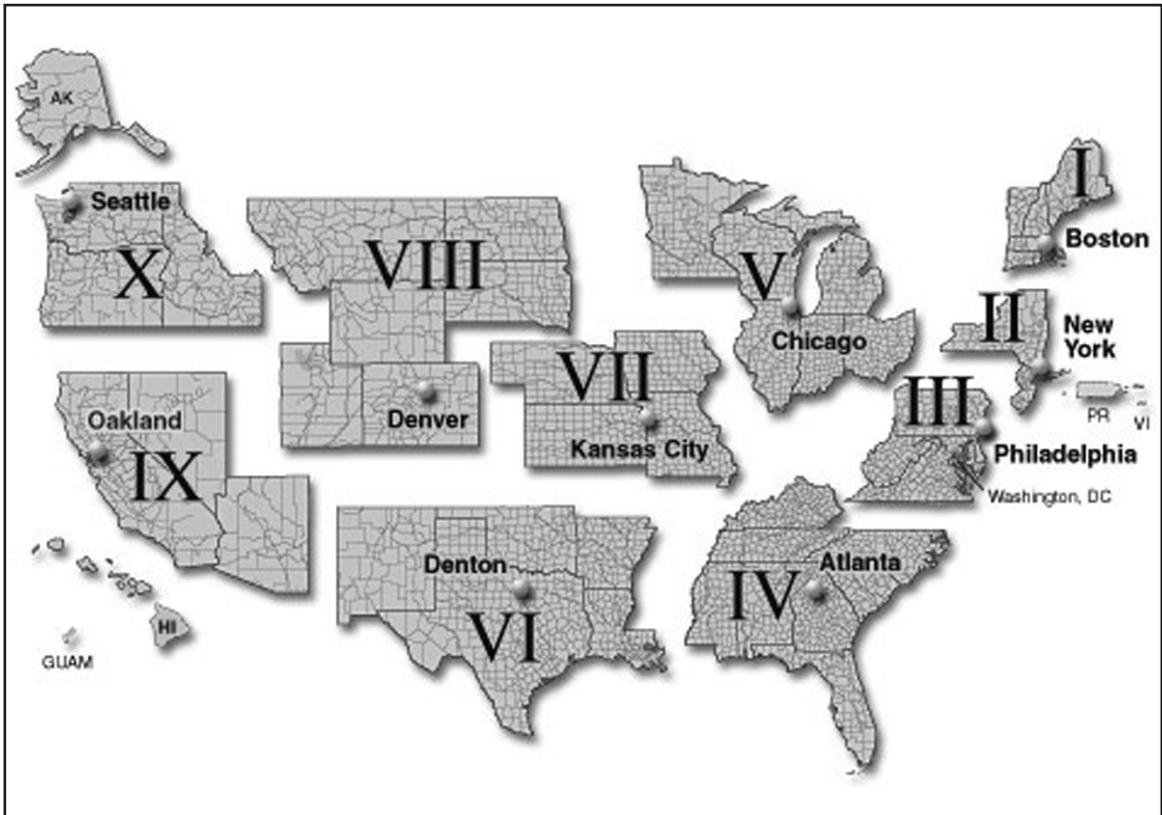
the law when the military is requested to assist in domestic law enforcement activities.

In addition to PCA, the second relevant legal restriction is the Insurrection Act. The Insurrection Act of 1807 is a U.S. Federal law that authorizes the President to deploy the military within the U.S. to suppress lawlessness, insurrection, and rebellion. This act is not commonly used and has only been employed twice in the last three decades, during the 1992 Los Angeles riots and Hurricane Hugo in 1989 to quell looting in the Virgin Islands.<sup>48</sup> In 2006, the U.S. Congress modified the Insurrection Act, which bolstered the President’s ability to use the U.S. military to enforce laws in the U.S. This increase in authority included the ability to deploy the military as a police force during natural disasters, epidemics, serious public health emergencies, or terrorist attacks when the President determines that local and state authorities are incapable of preserving public order or to suppress insurrection, domestic violence, unlawful combination, or conspiracy.<sup>49</sup>

### **The CBRN Response Enterprise**

In 2008, then Secretary of Defense Robert Gates authorized the incremental sourcing of three CBRN Consequence Management Response Forces (CCMRF). This approval stemmed from the necessity of providing a response element in the event of a catastrophic CBRN incident. Each of these three response forces consisted of approximately 4,700 personnel capable of providing an assortment of capabilities, including medical, chemical decontamination, aviation (rotary-wing), mortuary affairs, search and rescue, and general force capabilities.<sup>50</sup> Nine years have elapsed since the inception of the CCMRF, which has morphed into the current structure of the CBRN Response Enterprise (CRE).

This advent of the CRE—the military’s contribution to the whole of government approach to disaster relief—began in 1995



**Figure 1. FEMA Regions.**

Source: Created by author, adapted from FEMA, "FEMA Regional Contacts," last updated January 3, 2018, <https://www.fema.gov/fema-regional-contacts>, accessed on March 8, 2018.

when President Bill Clinton signed Presidential Decision Directive 39. This directive contained language that improved federal agencies' abilities to execute consequence management and created the Army National Guard's Weapons of Mass Destruction Civil Support Teams (WMD-CSTs).<sup>51</sup> These CSTs were designed to support civil authorities at a domestic CBRN incident site.<sup>52</sup> In 1995, General Charles Krulak, the 31st Commandant of the Marine Corps, initiated the development of the Chemical Biological Incident Response Force (CBIRF), which consisted of 500 personnel to respond to a CBRN or a high-yield explosive threat or incident.<sup>53</sup> Shortly thereafter, the Defense Against Weapons of Mass Destruction Act of 1996, also known as the Nunn-Lugar-Domenici amendment 4349, created the Joint Task Force-Civil Support (JTF-CS), a mission command element and 17 CBRN

Enhanced Response Force Packages (CERFPs) who bridge the capabilities gap between early first responders to federal forces.<sup>54</sup>

In 2010, the Quadrennial Defense Review recommended several changes to DoD's CBRN response strategy to improve the life-saving capabilities and flexibility of its forces and reduce response times. These changes included plans to create a state-controlled Homeland Response Force (HRF) in each of the 10 FEMA regions (see Figure 1) who can alert, assemble, and deploy within 6-12 hours for a CBRN incident to save lives, minimize human suffering, and prepare for follow-on forces in support of civil authorities.<sup>55</sup> In addition to the HRFs, a Defense CBRN Response Force (DCRF) and two Command and Control CBRN Response Elements (C2CRE) complete the CRE's current organizational architecture.<sup>56</sup>



A second National Guard asset that responds to disasters are the CERFPs. There are currently 17 CERFPs in the U.S. consisting of 203 personnel each. Similar to CSTs, CERFPs are a National Guard asset assigned to its respective governor and can be employed nationwide.<sup>62</sup> Four elements comprise CERFPs and can respond to a CBRN incident within 6–12 hours of initial notification. The first element is the command and control element that directs the CERFP and is responsible for its own safety in addition to its response planning. The second is the decontamination element, which provides mass casualty decontamination and zone monitoring. The third is the search and extraction element responsible for casualty search and extraction. The fourth is the medical treatment element. Its contributions include triage/emergency medical treatment; casualty sustainment and staging for evacuation, patient tracking and accountability; medical support to decontamination and search and extraction; and stress management for CERFP personnel.<sup>63</sup> The only example of real-world use of a CERFP occurred in Colorado in 2013 when it provided support during a flood evacuation by providing search and extraction elements.<sup>64</sup> Despite the CERFP's limited use and the 17 elements positioned across the country, the assumption is that CERFPs, like CSTs, are on stand-by for national special security events. Additionally, CERFPs are also part of the HRF organization and likely would be involved in the HRF operations.

There are currently ten HRFs in the U.S. HRFs are National Guard organizations consisting of 583 personnel each, which are distributed throughout the ten FEMA regions.<sup>65</sup> The HRFs have six functions. The first is a command and control element with the tasks of providing mission command, issuing orders, conducting deployment operations, laying out areas of operations, establishing communications, and conducting incident operations. The second is a CBRN assistance

support element that provides casualty assistance support. The last four functions are replicate functions of the CERFPs, including search and rescue, decontamination, emergency medical, and a fatality search recovery team.<sup>66</sup>

According to a 2016 Government Accountability Office report, since the establishment of HRFs in 2012, they have not deployed or been employed in support of civil authorities during a CBRN event. The report noted that in 2014 a HRF conducted a partial deployment in support of a landslide in Snohomish County, Washington, where its members assisted in fatality search and recovery

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and supported the National Guard headquarters staff with expertise in an assortment of staff functions.<sup>67</sup> Other notable occurrences included the Region III (Pennsylvania) HRF participation in the planning for the Papal visit to the U.S. in 2015 and the Region IV (Georgia) HRF's participation in planning for a CBRN or all-hazard incident for the 2012 Democratic National Convention in Charlotte, NC.<sup>68</sup> In summary, the CSTs, CERFPs, and HRFs are the CRE's state response forces.

The federal response forces for the CRE also consist of three elements, with the largest being the Defense CBRN Response Force (DCRF). The DCRF is a joint organization comprised of 5,200 personnel that are primarily active duty U.S. Army, U.S. Air Force, and U.S. Marine personnel, headquartered by the JTF-CS that provides the planning, training, and coordination for CBRN response operations.<sup>69</sup> Two force packages encompass the DCRF and can deploy within 24–48 hours of notification. Several capabilities reside within the DCRF, and

its key capabilities include but are not limited to CBRN incident assessment, search and rescue, decontamination operations, emergency medical, role 2 and role 3 medical, force health protection measures, military personnel and equipment operational security, site accessibility horizontal engineering, logistics, general support, aviation lift, mortuary affairs, and transportation.<sup>70</sup>

The DCRF is the largest federal response element within the CRE, but it is complemented by two smaller elements: the C2CREs. Sourced from the Reserve component and the National Guard, the two C2CREs consist of approximately 1,500 personnel and share many of the capabilities of the DCRF, but in smaller elements. Dedicated C2CRE capabilities include CBRN assessment, search and rescue,

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decontamination, emergency medical, role 2 medical, engineering, command and control, logistics, and transportation. Due to the size of the force and the sourcing of capabilities from the Reserves and National Guard, C2CREs require the augmentation of additional capabilities such as federalized National Guard assets (including WMD-CSTs, CERFPs, and HRFs) or forces from the active and reserve components to effectively respond to a large incident.<sup>71</sup>

The real-world use of capabilities within the DCRF and C2CREs have also been limited as evidenced by the last four major events that required military capabilities to support incident response efforts. Those events include the 2013–16 Ebola crisis, as well as Hurricanes Harvey, Irma, and Maria from the 2017 hurricane season. During the West African Ebola crisis (classified

as a CBRN event), not a single capability within the CRE responded in any capacity to the event. The most publicized action by the military was the deployment of approximately 1,000 soldiers from the 101st Airborne Division (Air Assault) to assist efforts to contain the outbreak of Ebola in Liberia.<sup>72</sup> In the U.S., the actions of the military were limited to fulfilling a request by the Department of Health and Human Services (DHHS) for a variety of medical specialists and the use of U.S. Army North (USARNORTH) for coordinating the training for a 30-person medical support team.<sup>73</sup>

The busy 2017 hurricane season included Harvey in Texas, Irma in the Caribbean and southeastern U.S., and Maria in the Caribbean and Puerto Rico. These storms required military support and had two common characteristics.<sup>74</sup> The first commonality was the whole of government response and the many federal agencies that participated as part of a unified response effort. Additionally, the U.S. military also provided needed capabilities. A number of military units were assigned to the CRE, but the second unmistakable commonality was that all the forces employed were general support forces, including aviation, logistics, or medical capabilities. In fairness, there was not a need for any of the CRE's technical support forces, but these examples add weight and support to the narrative that the nation is not using its technical support forces (TSFs) except for two examples. The first is the CSTs. The second is the CBIRF. Examples of this include the CBIRFs response to the 2001 anthrax letter attacks and the attempted 2004 ricin letter attack in the mailroom of the Dirksen Senate Office Building.<sup>75</sup> During the ricin incident, more than 140 members of the CBIRF sustained 24/7 operations for one week to allow the U.S. Congress to return to normal operations.<sup>76</sup> In 2011, the CBIRF also responded to the Japanese Tsunami/Fukushima nuclear disaster, which displayed the unit's ability to respond to international disasters.<sup>77</sup>

The focus on the composition of the elements of the CRE and its real-world use is important, but it is also important to highlight that the CRE does not have a monopoly on all of the country's CBRN response capabilities. Within DoD, there are CBRN capabilities that will be instrumental during a CBRN incident. These include organizations such as the U.S. Air Force's radiation assessment team, the 20th CBRNE Command, the Defense Threat Reduction Agency, and U.S. Medical Command's special medical augmentation response teams. Outside of DoD, several other federal departments and agencies have relevant capabilities. The noteworthy capabilities are within organizations such as the DHHS and DHS, including the National Disaster Medical System. Furthermore, capabilities exist in the Department of Energy and state and local governments. One particular example is the certified hazardous materials (HAZMAT) teams that are present within fire departments across the U.S. In summary, the six elements that comprise the CRE have a history of varying use levels during real-world events. Furthermore, the U.S. has several additional capabilities to respond to a CBRN incident other than the CRE as part of a whole of government approach. It is one thing to source an 18,000 plus personnel organization, but to train the organization to meet requirements to an expected standard is another.

### ***Training Requirements for the CRE***

There are two distinct types of forces that comprise the DCRF and C2CREs. The first are general support forces, which are units that provide capabilities and conduct training consistent with its organization's core mission essential task list (METL). General support forces, such as aviation or logistical units, do not require any specialized training beyond the training conducted for their core METLs. The second type of forces are TSFs. TSFs are forces that operate in the contaminated area of

an incident and require specialized training to conduct their missions. The 29th Volume, Code of Federal Regulations (29 CFR), specifically 1910.120(q), governs and guides operations for TSFs in a HAZMAT environment. CFR 29 stipulates guidance and instruction for HAZMAT planning, procedures, training, medical surveillance and consultation, chemical protective clothing, and post-emergency response operations for CBRN reconnaissance, CBRN mass casualty decontamination, emergency medical triage treatment and stabilization, and search and rescue forces.<sup>78</sup>

**...the [CBRN Response Enterprise (CRE)] does not have a monopoly on all of the country's [chemical, biological, radiological, and nuclear] response capabilities.**

Search and rescue forces train and equip to the technician level of technical rescue capability per National Fire Protection Association 1670 standards. This is notable because urban search and rescue is known as a "multi-hazard" discipline because forces are trained for a multitude of emergencies or disasters, including terrorist activities, earthquakes, hurricanes, tornadoes, storms, floods, dam failures, technological accidents, and hazardous materials releases. Admittedly, this skill set is vitally important during a disaster that has victims who require rescue/extrication and initial medical stabilization, especially those who may be trapped in confined spaces from structural collapses caused by a variety of means, including transportation accidents, mines, and collapsed trenches.<sup>79</sup> Nevertheless, FEMA already possesses 28 urban search and rescue task forces located throughout the country. At present, the agency is not currently accepting any new nominations for urban search and rescue task forces.<sup>80</sup>

CFR 29 is not the only driver of training

conducted within the CRE. Documents such as the Joint Chiefs of Staff CBRN execution order; USNORTHCOM Order 01-17; Headquarters, Department of the Army CRE execution order; and the USNORTHCOM-National Guard Bureau CRE training, exercise, and evaluation program stipulate training for the CRE. USARNORTH's Civil Support Training Activity conducts this

**...the CRE has grown through legislation into an organization that now consists of state and federal response forces totaling over 18,000 personnel.**

additional training, including performing a variety of training and readiness oversight missions captured in its theater-specific training requirements (Annex H).<sup>81</sup>

Annex H focuses on training related to the federal response elements of the CRE, including TSF forces and any augmenting personnel. The training for these elements, including individual and collective training, focuses on pre-mission assumption tasks, confirmation exercises, and sustainment training as defined by USNORTHCOM /USARNORTH theater-specific training requirements. These requirements include HAZMAT specific training, such as personal protective equipment, mass casualty decontamination, dismounted reconnaissance, and urban search and rescue. Collective training requirements include training proficiency evaluations in decontamination operations, reconnaissance operations, urban search and rescue, a field training exercise, and a command post exercise, such as "Vibrant Response." This exercise is the annual USNORTHCOM CBRN Command Post Exercise to confirm the readiness of the three two-star headquarters (DCRF, C2CRE-A, and C2CRE-B) conducted at Camp Atterbury, IN. The three-week-long, collective training exercise focuses on responding to a catastrophic incident

by using the scenario depicted in National Planning Scenario one, an improvised nuclear detonation within a major city in the continental U.S.<sup>82</sup>

In summary, the CRE has grown through legislation into an organization that now consists of state and federal response forces totaling over 18,000 personnel. This organization also has a complex set of training requirements, including regulations mandated by CFR 29 as well as the requirements set in Annex H. Does the current composition, the established training requirements, and the documented real-world usage of the organization match the threat environment? An examination of the types of WMD threats that the U.S. faces, as well as the probability of a CBRN attack, is worth scrutinizing.

### **Threat Analysis**

The increasing concerns over a CBRN attack in the U.S., as well as the heightened level of preparedness and security following the 2001 al Qaeda attacks, continues today. But what is the probability of such an event occurring? Historically, fears about such an attack intensified shortly after the 2001 attacks. In October 2001, Congress was told in a private briefing that there was a "100 percent" chance of another terrorist attack should the U.S. invade Afghanistan.<sup>83</sup> In 2010, after no new CBRN attacks on U.S. soil since the 9 October 2001 anthrax letter attacks that killed four and injured seven in Washington, D.C., the U.S. State Department, in its annual terrorism report, stated that one of the gravest threats to the U.S. and its allies' security was the possibility a terrorist organization obtaining and detonating a WMD.<sup>84</sup>

Four years later, heightened concerns about the probability of a WMD attack intensified. In 2011, Dr. Vahid Majidi, the Federal Bureau of Investigation's (FBI) assistant director in charge of the FBI's Weapons of Mass Destruction Directorate, stated that "the probability that

the United States will be hit with a weapons of mass destruction attack at some point is 100 percent.”<sup>85</sup> Dr. Majidi continued that an attack of this nature could be executed by “foreign terrorists, lone wolves who are terrorists, or even by criminal elements,” and that the use of a chemical, biological, or radiological weapon would be the most likely scenario, not the use of a nuclear device.<sup>86</sup>

In 2015, after the Ebola crisis, Martha McSally, a subcommittee chairwoman on the House Committee on Homeland Security’s Subcommittee on Emergency Preparedness, Response and Communications, insisted that a terrorist attack using biological weapons was a serious threat that could “cause illness and even kill hundreds of thousands of people, overwhelm our public health capabilities, and create significant economic, societal and political consequences.”<sup>87</sup> Representative McSally highlighted that, “Our nation’s capacity to prevent, respond to, and mitigate the impacts of biological terror incidents is a top national security priority.”<sup>88</sup> Statements such as these that overstate the probability of a CBRN or WMD attack in the U.S. will certainly resonate with the American populace while causing concern, if not an increased level of fear, but what are the counter-arguments?

An investigation of opposing views will inform the counter narrative about the probability of a domestic CBRN attack. The 2016 article “Will Terrorists Really Use WMDs” suggests that terrorists will not use WMDs because it creates an environment of a high investment with a low return for their efforts.<sup>89</sup> An example of this is Aum Shinrikyo, the Japanese doomsday cult who carried out the 1995 Tokyo subway attacks using sarin gas. Well-financed and well-coordinated, Aum Shinrikyo’s sarin attack was considered a failure because it caused only 12 casualties due to the weakness of the delivery mechanism.<sup>90</sup>

There have been 70 attacks classified as

terrorism in the U.S. since 11 September 2001.<sup>91</sup> Only two of these 70 attacks met the classification of CBRN incidents—the anthrax letter attacks that occurred in West Palm Beach, Florida, and Washington, D.C.<sup>92</sup> The predominance of these terroristic attacks (51) involved shootings while the rest of the attacks involved the use of knives, axes, machetes, bombs, and even a suicidal plane

### **There have been 70 attacks classified as terrorism in the U.S. since 11 September 2001.**

crash into a government building in Austin, TX. All told, these 70 terroristic incidents killed 217 and injured 638 Americans.<sup>93</sup> Notably, a number of these attacks received a high volume of coverage in the press due to their heinous nature. These included the 2009 shooting attack by Major Nidal Hassan at the Fort Hood Soldier Readiness Center, the 2013 Boston Marathon bombings by the Tsarnaev brothers, and the 2013 nightclub shooting in Orlando, FL, that killed 50. Missing from the list are the 2012 Aurora, CO, movie theater shooting that killed 12 and injured 70 people as well as the 2017 Las Vegas, Nevada, shooting that killed 59 and injured 527 people because they were both classified as criminal acts instead of terrorism.<sup>94</sup> As shown by historical evidence, most terrorist attacks in the U.S. are from means other than CBRN. Even though there have only been two CBRN-related attacks since 2001, it is sensible to examine an event that could potentially occur in the U.S. This will enable an understanding of the scope and scale, the needed response efforts, and the lessons learned from a previous CBRN event: the 1995 Tokyo Subway sarin attack.

On Monday, March 20, 1995, members of the Aum Shinrikyo cult orchestrated a chemical attack on the Tokyo subway during the morning rush hour. Aum Shinrikyo’s chemical agent of choice was liquid sarin.<sup>95</sup> Sarin is a clear, colorless, and tasteless liquid that has no odor

in its purest form. However, because of its volatility, sarin can evaporate into a vapor and spread into the environment, causing death due to exposure in large doses.<sup>96</sup>

Five members of the cult carried packets of sarin onto different Tokyo subway trains and at predetermined stations punctured the packets, exited the trains, and left the subway.<sup>97</sup> In the meantime, the subway trains continued toward the center of Tokyo while the sarin bags on the floors of the subway released sarin vapors. In total, eleven bags were left on the subway trains, but only eight of the bags were punctured. The Tokyo police estimated that a total of 159 ounces of sarin were released on the five subway trains and sickened anyone who came into contact with the chemical agent, which ultimately resulted in 12 deaths and approximately 6,300 injuries.<sup>98</sup> Once reports of the attack surfaced, the response to this event commenced.

The attack on the Tokyo subway system became the second documented incident of nerve gas poisoning in Japan. The first attack with nerve gas poisoning occurred in Matsumoto, Japan, in June 1994, considered a trial run by Aum Shinrikyo.<sup>99</sup> As a consequence of these attacks and the many problems encountered because of them, the Japanese reframed their approach to disaster management.<sup>100</sup>

**...the problems...raised enough concerns that the Japanese changed their overall approach to disaster management.**

The initial problem was that Japanese authorities did not realize that a singular cause was responsible for all of the emergency calls to the Tokyo Metropolitan Ambulance Control Center (TMACC) as the center dispatched Emergency Medical Technicians (EMTs) to the 15 impacted subway stations.<sup>101</sup> Even though over 1,300 EMTs and 131 ambulances were sent to the 15 stations, the out-of-hospital

medical treatment was sub-standard due to communications lapses between the EMTs and the doctors at TMACC.<sup>102</sup> The issue with communication and interoperability experienced by the responding emergency medical system became one of the primary issues in the Tokyo subway attack.<sup>103</sup>

Another challenge was the transportation of the victims from the scene to the hospitals. EMTs transported 688 victims via ambulances and minivans.<sup>104</sup> According to the article “The Sarin Gas Attacks on the Tokyo Subway: 10 Years Later/Lessons Learned,” most of the victims of the attack did not need first responder aid and decided to self-evacuate themselves for medical treatment.<sup>105</sup> This created an environment of chaos, as most of the victims arrived at one hospital (St. Luke’s) rather than being properly distributed, causing additional issues such as inter-hospital transportation because of patient overloads.<sup>106</sup> Lastly, there was no on-site decontamination of the victims, creating an environment of secondary exposure, which undermined the effects of medical personnel as they came into contact with the victims.<sup>107</sup>

Certainly, the problems with communications, transportation, and the decontamination of victims, as well as other identified problems, raised enough concerns that the Japanese changed their overall approach to disaster management. This is relevant as some advocates in the U.S. use the Tokyo subway sarin attack to justify an elevated level of preparedness in the U.S. and the capability of responding to three near simultaneous events. Even after analyzing the Tokyo subway sarin attack, this incident would not have required 18,000 personnel or a force structure similar to the CREs. An event like the Tokyo subway incident requires a response that adheres to the concept of tiered response and, if needed, implements mutual aid agreements, whether they are intrastate or interstate. To put the Tokyo subway attack into the context of time, the Tokyo fire department received the first

emergency call about the attack at 8:09 a.m., but not until 9:20 p.m. did the last soldiers from the Japanese Defense Forces arrive to decontaminate the subway stations and trains.<sup>108</sup> In retrospect, the event lasted less than 18 hours. In the U.S., local responders such as EMTs and local fire departments with qualified HAZMAT teams would initially respond to this type of event. This initial response would be augmented with CSTs and possibly by the U.S. military using IRA if there was a nearby military base with the appropriate capabilities.

The essential point is that it is a mistake to underestimate the capabilities of local and state levels of government to respond to such an event. Because of training and evaluations, these levels of government and their assets are now in a much better position than when the CRE was initially developed. If there was an actual instance of three near simultaneous disasters on the same scale as the Tokyo subway event, local and state levels of government can properly respond to and augment the initial responders with state response assets inherent to organizations such as CSTs, CERFPs, and HRFs to assist the civil authorities in their efforts.

The aforementioned threat analysis revealed the rhetoric about the overstated threat of a terroristic attack using a WMD. The same experts, including the CIA, concluded that if such an attack were to occur on U.S. soil, it would be small-scale in nature. The evidence suggests that the actual terrorist threat in the past 17 years has mostly been shootings and other means to cause harm to American citizens, not by CBRN related incidents or WMDs. In addition to terror attacks, natural disasters such as hurricanes, earthquakes, and floods, for example, have continuously caused widespread damage and should be involved in the conversation when discussing the CRE and disaster response. Lastly, the analysis of the Tokyo Subway sarin attack identified the associated problems that the Japanese incurred during the event, but it also showcased how

rapidly an event of this nature happened from start to finish in terms of responding to the event. All of the aforementioned analysis and evidence were taken into consideration before making the recommendations contained in the next section.

## Recommendations

Admittedly, the 2001 attacks against the U.S. raised concerns of additional attacks, specifically with nuclear weapons or any other type of a CBRN method. This generated an increased level of preparedness as well as the ability to respond to a CBRN event in the U.S. The U.S. military contributed to this enhanced

**...the actual terrorist threat in the past 17 years has mostly been shootings and other means to cause harm to American citizens...**

preparedness by developing the CRE, which has now been in existence as an enterprise just shy of ten years. It is now practical to make changes to the CRE by reducing the force structure and amending the training program to increase efficiencies. An examination of key items, such as the operational environment, the composition and training program of the CRE, and the analysis of the threat, led to the following three main conclusions. First, the actual threat of a large-scale CBRN event occurring in the U.S. is low. In addition, assets already exist to respond to and mitigate small to medium-sized incidents. Second, in addition to the low probability of threat, the only element in the CRE that is providing a significant return on the nation's investment are the CSTs. The rest of the CRE is minimally used in CBRN-related events. In many cases, the allocated capabilities within the enterprise have been used in "all hazards" events such as hurricanes. Third, there are a significant amount of available assets inside and outside of DoD that do not exist within the

CRE that are available for use during a response. The positive news is DoD can reduce the size and the cost of the CRE by implementing six recommendations that were determined from research and evidence.

**To have a system that has three different mission command headquarters for a CBRN incident and another mission command headquarters for an all hazards incident is overkill.**

The first recommendation is to immediately change CJCSI 3125-01D and any other document that mandates or contains the requirement to “be prepared to respond to three nearly simultaneous, geographically dispersed significant CBRN incidents, or one catastrophic CBRN incident within the Continental U.S., Puerto Rico, U.S. Virgin Islands, and Alaska.”<sup>109</sup> A realistic assessment of the threat and the associated risk does not justify keeping the CRE at its current structure to meet this requirement. Terrorists undoubtedly have used chemical and biological attacks to harm and maim innocent individuals, but these attacks have been on a relatively small-scale and primarily targeted the Middle East. The CBRN events that CRE elements have conducted in real-world response have also been small in scale. The bottom line is, neither the threat, nor historical incidents, merit maintaining a force that can respond to three near simultaneous events.

The second recommendation is to end specialization. The reasoning that there is a need to specialize the military’s support for disaster response is flawed. Specialization is not practical nor a good business practice. Currently, there is a distinct difference between the way the military plans, prepares, and trains for a CBRN incident and that of an “all hazards” incident. The adoption of an “all hazards” mindset would increase efficiency in the disaster-response

system. Without this mindset, there will be a continued complexity in terms of the mission command structure, sourcing capabilities, and the equipping and training of assigned and allocated units in a DSCA environment. To have a system that has three different mission command headquarters for a CBRN incident and another mission command headquarters for an all hazards incident is overkill. The military should simply follow the concepts for command and control or mission command established in JP 1 and ADP 6-0. As a matter of fact, during the response to Superstorm Sandy, the military did not follow its own concept of specialization. This was evident by the decision to deploy JTF-CS, a CBRN headquarters, as the preferred mission command headquarters over USARNORTH’s Task Force 51, a headquarters that had experience in all hazards events such as hurricanes.

The third recommendation is to eliminate the three existing two-star mission command headquarters in the CRE because the ever-increasing acceptance and use of the DSC has eliminated the need for maintaining these headquarters within the CRE. This has become increasingly clear through the designation of a DSC as the command link between state and federal forces for catastrophic events such as Hurricanes Sandy, Harvey, Irma, and Maria. Additionally, USARNORTH has completed its certification as a JTF and has proven its ability to successfully use a JTF-Forward in catastrophic incidents such as Hurricanes Harvey, Irma and Maria. Of note, one counter-argument to this recommendation is the idea that it is necessary to maintain at least two two-star headquarters for the mission command of federal forces if the U.S. military ever received a requirement to respond to near simultaneous events. The simple solution to this argument is to source a division headquarters to serve as the second JTF-Forward, if required.

The fourth recommendation is to stop

executing exercise Vibrant Response. The sole task and purpose of Vibrant Response is to confirm the three two-star mission command headquarters as part of the validation process prior to annually assuming the mission on 1 June. The recommendation has already been made to eliminate the two-star headquarters, which reduces the need for Vibrant Response.

The fifth recommendation is that the Army discontinues the sourcing of allocated forces for the C2CREs. This recommendation is based on the low threat probability of a WMD event in the U.S., as well as the limited usage of the C2CRE's allocated forces for real-world incidents. Even with this elimination of the forces from the C2CREs, the CRE will still maintain the CSTs, CERFPs, HRFs, and allocated forces from the DCRF to respond to a catastrophic incident in the homeland.

The last recommendation is to discontinue any technical search and rescue training within the CRE due to duplicate capabilities, specifically the already existent 28 FEMA urban search and rescue task forces and the large number of Type 1 and 2 certified teams within the nation's fire departments. Furthermore, the 70-day technical search and rescue course that provides all necessary certifications in hazardous waste operations, emergency response, and search and rescue is neither necessary nor cost-efficient for CRE units to attend.

In conclusion, there may be personnel within DoD and the disaster response community who are comfortable with the current status quo and want to avoid changing it. One of the main arguments against changing the system is that the U.S. has not experienced a CBRN attack since 2001, so the current system must be working properly. The main flaw with this argument is relevant to the area of prevention, but it is not germane to continuing the current resourcing, training, equipping of the CRE. The fact that the U.S. has not experienced an attack in 17 years suggests that an event of this nature should be categorized as a rare event, which means the probability of a high magnitude CBRN event occurring is low. DoD and the disaster communities continue to overestimate the probability of an unlikely event occurring and overweigh this probability in their decision making and planning processes. This tendency to ignore the low probability of a CBRN event occurring is partly due to the language used shortly after the attacks of 11 September 2001 by subject matter experts who all seemingly estimated a high probability of a catastrophic CBRN event occurring in the U.S. This prediction can also be attributed to planners and decision makers discarding or ignoring threat assessments by experts as discussed in the analysis section of this paper. Notably, part of the problem was and continues to be that the lead federal agency, FEMA, has never given requirements to DoD for planning for an event of this extent. This lack of guidance by the lead federal agency causes DoD to continue to operate an enterprise based upon its own determination of the requirements, which ultimately caused the development and maintenance of the current CRE structure to meet these internally estimated requirements. Finally, the status quo does not have to continue. DoD and its valued partners simply need to continue reframing and reassessing the operational environment for the CRE and implement changes to address the key areas of organizational structure and the training program while continuing to prepare for DoD's role in the whole of government approach if a catastrophic CBRN incident occurs in the U.S. **IAJ**

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