

Disasters within a Disaster: Establishing Effective Emergency Operating Centers During a Pandemic

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ABSTRACT

The challenges brought on by the COVID-19 pandemic have been far-reaching and impactful in unforeseen ways. During 2020, regional emergency response efforts for “normal” national disasters were executed while enveloped in the grip of the global Coronavirus pandemic. Hurricanes, floods, wildfires, and earthquakes happen most every year, but not under the hampering restrictions of a global pandemic. Federal and regional response efforts were severely impacted. These efforts normally require the utilization of federal, state, and local Emergency Operations Centers (EOCs) and other incident response centers which are normally staffed with representatives from numerous organizations working together in close proximity for long durations.

The pandemic significantly limited the “in-person” interaction between response individuals and organizations, requiring innovative solutions to managing incidents in the pandemic setting. Agencies were forced to quickly adapt and leverage new mechanisms and partnerships to facilitate a timely response. The salient lessons learned in standing up and running an effective EOC (in-person and virtual) for natural disasters during the pandemic are directly relatable to the nuclear power and nuclear security enterprises. The need to stand up an EOC in response to an incident that impacts at-risk radiological or nuclear material is a rare occurrence. Regardless, the preparation for such an event is paramount as a flawed multi-agency response operation threatens continuity of operations of our critical infrastructure. This paper will explore the relevant lessons learned in EOC operations during the COVID-19 era and how they can be applied to radiological and nuclear incidents.

INTRODUCTION

The COVID-19 pandemic was a significant national disaster and as such, required an all-hands-on-deck effort while using significant hands-off safety protocols to minimize the spread of the disease. Many agencies pivoted to work with others to gather critical information, develop testing mechanisms and protocols, develop supply chains, distribution networks and processes to get Personal Protective Equipment (PPE) to the health care facilities, patients, and front-line responders, and lastly, develop a phased approach to develop and distribute vaccines.

While all these activities were occurring to address COVID-19, the world's rhythm of disasters (natural and man-made) continued unabated and created a new paradigm for responding to them at a scale never experienced in modern times. A key element in responding to significant disasters is the use of Emergency Operations Centers (EOCs), which serve as nerve centers for the multi-agency, multi-discipline capabilities required to manage the disaster responses. The National Incident Management System (NIMS) was established by the Department of Homeland Security in 2004 and includes the Incident Command System (ICS). NIMS provides a comprehensive, national approach to incident management that is applicable at all jurisdictional levels and across functional disciplines. An EOC has traditionally been a physical site that is located separately from the on-scene Incident Command Post and supports the on-scene response by providing external coordination and securing of additional resources.

EOC OPERATIONS DURING THE COVID-19 PANDEMIC

During 2020, while still in the grips of the pandemic, earthquakes, hurricanes, wildfires, other weather events, and special national events required federal emergency responses. In fact, 30 named storms occurred, of which 13 became hurricanes, and six major hurricanes. Many of the 2020 disasters required significant incident response efforts.

Pre-pandemic, when disasters occurred that require an all-hands-on-deck response, federal, state, and local EOCs were stood up to provide incident management leadership while responders from multiple agencies physically reported to the EOC to collaborate with others to bring order out of the chaos. This often meant a special facility with special conference rooms where responders worked together in close proximity to address the incident issues, a situation that was significantly limited since the beginning of the COVID-19 pandemic in early 2020.

Another significant issue during the earlier stages of the pandemic was people with COVID-19 who showed no symptoms. Without testing, it became impossible to identify these individuals, so it was possible for a responder who had COVID to show no symptoms, show up at an EOC, follow safety protocols, and still be able to infect others in the EOC with no indication of doing so. With the difficulty of getting tested unless one was identified as symptomatic, a frontline medical worker, or a first responder (police/fire), it became paramount to be overly strict in the implementation of safety measures for EOCs: social distancing, mask wearing, temperature checks, and frequent sanitization of responders and facilities.

The PIVOT to Hybrid EOCs:

With the safety challenges presented by the pandemic, EOCs needed to alter their "battle rhythm" and pivot to a much more virtual approach where possible; the use of various virtual platforms became the norm instead of the exception. It became a requirement for responders to become fluent in the use of Zoom, MS Teams, WebEx, Adobe Connect, and many other virtual platforms to actively participate and contribute. Responder safety became paramount as the development of "Concept of Operations (CONOPs) for Response during the COVID-19 Pandemic" became a necessity to safely navigate the responses while reducing and monitoring potential responder

exposure to the virus. Center for Disease Control (CDC) protocols were implemented at EOCs and other response locations/facilities.

With the advent of the COVID-19 pandemic, EOCs evolved to accommodate the safety protocols initiated to slow the growth of the pandemic, including social distancing, sanitization procedures, COVID testing, temperature checks, mask wearing, and other such mechanisms. Additionally, Emergency Response Organizations (EROs) improved safety for in-person response by adding safety officer roles and using specific safety checklists to reduce responder exposure. EOC postures became flexible to support the evolving nature of incidents, requiring transitions from virtual to in-person or vice-versa where necessary.

While many responders were “activated” virtually to support an EOC during an incident, a requirement for in-person response still existed, so in addition to the safety protocols put in place at an EOC, the responders also had to be willing to report and follow all safety measures implemented at a site. Responders with underlying health issues or those unwilling to meet in person created pressure to find qualified responders prepared and able to report to a location for an incident requiring a partially staffed EOC.

As EOCs became partially staffed with in-person responders, daily meetings were conducted with both in-person and virtual responders, the importance of communication became evident. The use of masks for in-person responders hampered speakers’ ability to be understood during video conference calls and network bandwidth issues for virtual responders made for challenging interactions.

2020 Oregon Wildfires Example

An example of pandemic impacts to response efforts occurred during September 2020, as numerous large fires in Oregon required a hybrid activation of the Oregon State EOC, with some response personnel reporting in person and others activated virtually. As expected, this hybrid approach created challenges for the timely flow of information and frequent interactions that normally occur in an EOC. Virtual responders were limited to interacting via video/audio calls, emails, and texts, instead of being able to walk over and have conversations in person, in real time. The hybrid approach created communication delays and hampered the normally organic free flow of information and interactions across agencies and roles that enable EOCs to expedite the response to and recovery from incidents. While other significant disaster responses during 2020 were impacted similarly, EOCs were able to successfully fulfill their roles in managing the incidents through innovative ideas and hard work.

RADIOLOGICAL EMERGENCIES

If the disasters of 2020 had included a significant nuclear or radiological event, the need for highly specialized and technical in-person radiological response would have been critical. With the safety restrictions enforced on EOCs because of the pandemic, this capability may have been severely reduced, creating an unacceptable response scenario where enough key experts could not participate in person to interact with EOC leadership and properly characterize, communicate, and work to mitigate the potential impacts of a radiological release.

If a significant radiological or nuclear event occurs, the EOCs of the impacted jurisdiction would be fully activated and all sections would be fully engaged. A widespread radiological event would add complexity to the responsibilities of each section and requires consultation with technical experts to ensure the safety of the public and responders in executing response operations. Fortunately, there are no examples of actual widespread radiological events within the US, so the most relevant examples are how a potential scenario would impact EOC operations. Current plans indicate that most technical expertise would be located at the incident command post or other technical response locations, with advisors and liaisons being sent to EOCs to support operations. In training and exercises, the technical personnel at EOCs have played a significant advisory role and the in-person communications have been critical to EOC success. Furthermore, receiving technical expertise from off-site experts has not worked as well as in-person assistance because off-site personnel are focused on in situ activities and it puts EOC personnel in the position of seeking assistance rather than it being resident at the EOC. Hybrid and virtual EOCs may make that communication and coordination increasingly difficult, which could lead to ineffective operations or impede planning efforts. This potential impact should be examined further in drills and exercises to determine if coordination can be facilitated in a hybrid or virtual EOC.

Harborview Medical Center Example

A recent example of a radiological event occurred in Seattle in May of 2019. A cesium source was breached during removal from a research building and the contamination impacted most of the building and a handful of personnel on site at the time. From the outset, it was a complex radiological incident that required local fire, hazmat, and medical personnel during the initial response. Contaminated individuals were sent to Harborview Medical Center for observation and clearance. However, the situation was quickly stabilized, and it was determined that the radiological contamination was contained within the site. This put the initial responsibility solely on the local institution and the removal personnel, eliminating the potential for EOC coordination.

The event was significant enough that the subsequent decontamination and remediation of the building took almost two years. However, the event had little impact on local, state, or federal EOCs with jurisdiction over the location or activity. This inactivity at EOCs warrants investigation as to why there was not more stress at the EOC level. The event was extremely taxing for the institution, the state regulator, and the Department of Energy. It required a coordinated effort of specialized resources to identify, secure, and remediate contamination. The response required approvals across the local, state, and federal levels. The local institution and the Department of Energy coordinated public information throughout the project, yet there was limited reporting and coverage of the event. There was no impact to the general public and exhaustive off-site monitoring could not identify contamination at a level that required action. The combination of factors that kept this event from taxing any of the EOCs involved may not occur in future responses.

Radiological Responses - Highly Specialized and Complicated

Responses to radiological events require highly specialized and complicated technical expertise to be shared across most sections activated in an EOC. These responses require experts to confer directly and for multiple personnel to regularly come in close contact with each other, as they

review models, projections, release scenarios, protective action guidance, and other technical products. This free flow of information might be impacted by hybrid or virtual EOC operations where sections might be quarantined or limited in interactions to avoid the potential for cross-contamination. In some cases, operations can be segmented to isolate groups of personnel in case of exposure. While this might work in field operations, or in modified EOC operations, the nature of technical experts would make them difficult to isolate and still provide critical in-person advice. How experts provide this assistance can be examined to see if interaction time, distancing, or shielding could be employed to keep them safe.

SECURITY EMERGENCIES

A security event during a pandemic will most likely present challenges. Many organizations had contingency plans in place that addressed pandemics; however, these plans were seldom exercised and lacked detail.¹ An event that may require the activation of an EOC, such as an active shooter or hostage situation, in addition to the EOC challenges outlined above, may pose certain challenges in staffing the on-scene response personnel.

It is estimated the nuclear sector in some countries had absences due to illness as high as 20% during the pandemic.² Basically, 20% represents an entire shift in many countries. The number was compounded by personnel who tested positive for Covid-19 but were asymptomatic. So how does an EOC and protective force organization already suffering a personnel shortage balance the need to staff regular posts, fill additional security assignments around the scene, and activate and rotate personnel in the Special Response Teams? A similar dilemma would be found with organic EMS and fire services.

Many answers are possible but ideally vital response personnel would have been protected as much as possible from the general population from the beginning of the pandemic. This is of course easier said than done, especially since protective force and EMS personnel routinely interact with the general populace of a site. Many sites lacked PPE for vital personnel at the start of the pandemic³ as did most organizations, which may have been prevented by detailed contingency planning. It has also been suggested that allowing personnel to stay on site and work longer shifts to reduce overall exposure would have been beneficial as well, but it may have been expensive in terms of overtime wages.

Covid-19 turned out not to be as deadly as originally feared, with current survival rates in healthy individuals reported to be over 99.7%. Not activating reserve forces, even those with positive Covid test during a real-world nuclear security event, would now seem to be a ridiculous decision. What if the pandemic had been more deadly to the general population? Is sequestering the entire workforce population of vital personnel reasonable? This is most likely not viable for several reasons. Security needs will most likely override health concerns even in a pandemic.⁴ This

¹ Hobbs. INSF-UK-NS, slide 25.

² Hobbs Roth and Salisbury – Security Under Strain, pg 43.

³ Id at 45.

⁴ Id at 48.

pandemic has been terrible on many fronts, but it has also presented many lessons to be learned by the global nuclear security enterprise. The IAEA is attempting to share best practices and lessons learned in their OPEX Network (<https://www.iaea.org/resources/databases/covid-19-npp-opex>) and all are encouraged to participate.

CONCLUSIONS

While the pandemic significantly hampered emergency response efforts during 2020, many positive outcomes arose due to previous vulnerabilities. Communications capabilities were tested and improved in many cases. Response plans were updated to strengthen pandemic impacts to the incident management process. FAQs for many industries were developed to help government, industry, and society address previously unforeseen issues. Training and exercise activities were modified to enable continuation of these necessary elements of emergency preparedness, mitigation, response, and recovery. EOCs now have a more refined template for responding to disasters during a pandemic and can exercise that template to assure a more robust and effective capability.

Regardless of the improvements and lessons learned for EOC operations during the COVID-19 pandemic, organizations and facilities with nuclear and radiological materials would benefit from re-evaluating the adaptability and effectiveness of their EOCs when activated for emergencies during a major pandemic like COVID-19.