National Level Exercise 2018

After-Action Report Executive Summary

August 2018

FEMA

NATIONAL EXERCISE PROGRAM

Validating our nation's preparedness

LETTER FROM THE ADMINISTRATOR

The unprecedented scale and rapid succession of hurricanes Harvey, Irma, and Maria last fall stretched response and recovery capabilities at all levels of government and are transforming the way emergency managers prepare for and respond to disasters. In preparation for the 2018 Atlantic hurricane season, we further challenged ourselves through National Level Exercise (NLE) 2018 by bringing together more than 12,000 personnel to respond to a simulated hurricane striking the Mid-Atlantic.

Over the first two weeks of May, NLE 2018 examined the ability of all levels of government, private industry, and nongovernmental organizations to protect against, respond to, and recover from a major hurricane. Five states, the District of Columbia, 67 local jurisdictions, 160 private sector organizations, and 91 Federal departments and agencies joined FEMA to examine four themes based on real-world continuous improvement efforts: (1) Pre-Landfall Protective Actions; (2) Sustained Response in Parallel with Recovery Planning; (3) Continuity in a Natural Disaster; and (4) Power Outages and Critical Interdependencies.

In addition, in support of the first goal in FEMA's Strategic Plan to *Build a Culture of Preparedness*, more than 30,000 people downloaded the FEMA App during NLE 2018, and more than 450,000 individuals participated in personal preparedness activities and accountability drills as part of the exercise.

NLE 2018 also provided the first opportunity following the 2017 hurricane season to practice risk-based coordination and prioritize the restoration of response lifelines—sectors providing indispensable services for the continuous operation of business and government as well as preservation of human health and safety. During the exercise, FEMA senior leadership and Emergency Support Function partners tested a risk-based format for senior leadership video teleconferences and worked to prioritize and adjudicate notional resources.

Exercises like NLE 2018 provide an outstanding opportunity to continue learning and improving. The findings in this report highlight just a few of the things we need to sustain or do better. I look forward to working with all of you to build a stronger Agency and a more prepared and resilient Nation.

Brock Long
Administrator

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The findings from NLE 2018, listed below, will contribute to the Nation's efforts to meet the National Preparedness Goal—a secure and resilient Nation with the capabilities required across the whole community to prevent, protect, mitigate, respond to, and recover from the threats and hazards that pose the greatest risk. These findings reflect exercise play and identify several opportunities for improvements to real-world operations for future hurricane response efforts. Several of these opportunities are represented in "Recommended Outcomes" linked to each exercise objective. These statements offer suggested guidelines for departments and agencies to incorporate into their ongoing continuous improvement efforts.

NLE 2018 Key Findings and Recommended Outcomes	
Objective 1: Pre-landfall Protective Actions	
1	Federal, state, local, and private sector partners coordinated effectively with FEMA Region III and affected states to comprehensively assess impacts to critical infrastructure and prioritize protective measures.
2	FEMA Region III successfully simulated pre-staging power restoration assets, but the Federal Government struggled to leverage other private sector offers of support.
3	FEMA Region III used preparedness data and lessons learned from the 2017 hurricane season and other past incidents to inform decision making.
4	Hurricane plans from FEMA Region III guided pre-landfall coordination with states and post-landfall evacuation and sheltering efforts.
5	FEMA headquarters coordinated with FEMA Regions III and IV to efficiently simulate the pre-staging of communications resources near threatened areas but faced challenges simulating pre-staging medical transportation resources as both Regions sought ambulance resources from the same contract.
6	To pre-position life-saving and life-sustaining resources, FEMA Regions III and IV identified Federal Staging Areas (FSAs) and Incident Support Bases (ISBs), identifying qualified staff despite shortfalls from deployments to Puerto Rico and the United States Virgin Islands.
7	During the evacuation deliberation process, the states and FEMA Region III worked to ensure that people with disabilities and those with access and functional needs were provided for in notional sheltering and transportation services.
Recommended Outcomes	
▪ Federal departments and agencies and private sector partners openly and efficiently coordinate to assess potential impacts to critical infrastructure, prioritize protective measures, and move resources as needed. ▪ Evacuation plans and decision-making processes are developed by working with the whole community, including coordination with state and regional disability partners to ensure that	

the needs and requirements of those with disabilities and functional needs are integrated into the response.

- Emergency managers collect and analyze lessons learned from previous incidents to inform operational planning.
- Contracts for support resources such as ambulances are sufficiently agile to support evolving needs across a wide geographical area.

Objective 2: Sustained Response in Parallel with Recovery Planning	
8	FEMA headquarters and FEMA Region III successfully staffed the response, despite shortfalls due to ongoing incidents.
9	Departments and agencies noted confusion regarding mission assignment adjudication, including the use of pre-scripted mission assignments.
10	The National Business Emergency Operations Center (NBEOC) increased situational awareness and enabled the government and private sector to convene consistently throughout pre-landfall and response efforts by creating a predictable schedule of daily coordination calls.
11	The National, Regional, and State Business Emergency Operations Centers (BEOC) demonstrated an increased level of coordination from past hurricane seasons.
12	All levels of government showed strong coordination with established nonprofit partners throughout response and early recovery activities.
13	External Affairs partners at all levels of government coordinated effectively with each other and with key stakeholders to issue protective action guidance and provide accurate information on response and recovery activities.
14	Although Recovery Support Function Leadership Group (RSFLG) meetings provided a productive platform for conversations between Emergency Support Function and Recovery Support Function stakeholders, existing limitations prevent full integration.
15	FEMA Senior Leadership quickly prioritized fulfilling pre- and post-landfall hospital needs, and Federal and state counterparts coordinated effectively with partners to support facilities across the Region.
16	During initial response operations, FEMA and affected states prioritized housing and identified initial sheltering options, but engagement with private sector partners was minimal.

Recommended Outcomes

- Coordinated public messaging across all levels of government provides timely protective action guidance and updates on response and recovery activities.
- Formal mechanisms support large-scale resource coordination and effective information sharing between the public and private sectors.
- Mechanisms to coordinate nonprofit support for government response and recovery operations are standardized and documented in relevant plans.

- Emergency managers leverage private sector partnerships to fulfill large-scale, long-term housing needs.
- Mass care data is reported accurately and consistently by Federal, state, local, and private sector stakeholders and is used to drive timely and sufficient decisions to support survivors.
- Codified processes support coordination between Emergency Support Function and Recovery Support Function stakeholders.
- Whole community emergency managers develop, train, and exercise as a national incident workforce, including as part of the National Qualification System (NQS).

Objective 3: Continuity in a Natural Disaster	
17	Department and Agency leadership consulted continuity plans to determine an appropriate response, but, in some cases, the decision-making process revealed issues with devolution as a viable continuity option.
18	Most organizations started reconstitution discussions immediately.
19	Some organizations were unable to successfully account for all personnel and did not account for impacts of the disaster on their employees' ability to report for duty.
20	Continuity reporting from participating Departments and Agencies was inconsistent.
21	Continuity situational awareness requirements and reporting processes require planning, training, and exercising.
22	Most organizations did not demonstrate successful use of alternate communications systems.

Recommended Outcomes

- Federal and non-Federal partners develop, train, and exercise their staff on comprehensive continuity of operations plans.
- Organizations conduct full employee accountability, provide guidance and direction to the full workforce prior to and during incidents, and adequately account for staffing impacts when employees may be disaster survivors.
- Organizations performing essential functions demonstrate proficiency in primary, alternate, contingency, and emergency communications capabilities.
- The Federal Executive Branch National Reconstitution Program is operationalized.
- National reporting requirements for departments and agencies are clearly articulated so FEMA and other organizations can implement efficient processes to support those reporting requirements.

Objective 4: Power Outages and Critical Interdependencies	
23	FEMA leadership prioritizes incorporation of the private sector into response and recovery operations, but current doctrine does not reflect the National Business Emergency Operations Center's role in facilitating integration, while staffing limitations hinder opportunities for innovation.
24	Integration with private sector partners, especially utility companies, is limited; one consideration is that they do not have a consistent designated role in Federal and state operations centers or staging areas.
25	Participants in the electricity subsector noted several barriers and potential vulnerabilities to effective communication between electric utilities and government partners.
26	Clear communication regarding power restoration prioritization allowed effective coordination and efficient use of limited resources.
27	FEMA Region III and the American Red Cross coordinated effectively with private sector logistics and retail companies to ensure the notional delivery of goods from Incident Support Bases (ISB) to Points of Distribution (POD) in Maryland.
28	Emergency Support Function #1 coordinated effectively with NORTHCOM to prevent a notional emergency at a power station, which enabled disaster operations to continue in Hampton Roads and along I-64.
29	The District of Columbia coordinated effectively with the Environmental Protection Agency, U.S. Coast Guard, National Oceanic and Atmospheric Administration, and U.S. Army Corps of Engineers to notionally address hazardous materials in the Potomac River.
30	States encountered difficulties coordinating damage assessment efforts for tunnel unwatering, which could have hindered response efforts.

Recommended Outcomes

- Private sector partners are fully integrated into response and recovery operations.
- Government departments and agencies and private sector infrastructure owners and operators collaboratively identify risks and support mitigation and stabilization efforts.
- Private sector partners and government departments and agencies work through a single organizational structure to align incident priorities and adjudicate resource requirements.

EXERCISE OVERVIEW

Held during the first two weeks of May 2018, NLE 2018 brought together more than 12,000 individuals across the whole community to examine the ability of all levels of government, private industry, and nongovernmental organizations (NGOs) to protect against, respond to, and recover from a major Mid-Atlantic hurricane. Additionally, more than 450,000 individuals participated in personal preparedness activities and accountability drills as part of the exercise.

Figure 1: 275 unique organizations participated in the planning of NLE 2018

The Post-Katrina Emergency Management Reform Act of 2006 (PKEMRA) requires that the FEMA Administrator periodically, but not less than biennially, perform national exercises to test and evaluate the capability of local, state, tribal, and Federal governments to respond to and recover from catastrophic incidents in a coordinated and unified manner.[1] NLE 2018 fulfilled this requirement and served as the culminating event for the 2017-2018 cycle of the National Exercise Program (NEP).

The real-world storms of the 2017 Atlantic hurricane season reinforced the need to examine response and recovery core capabilities associated with a major hurricane. The 2017 Atlantic hurricane season was one of the most active seasons in U.S. history, causing unprecedented destruction of critical

[1] Post-Katrina Emergency Management Reform Act (PKEMRA), "Training and Exercises," 6 U.S.C. § 748 (2006).

infrastructure, livelihoods, and property. Between August and November 2017, three storms made landfall as major hurricanes in the United States, affecting over 25 million people. NLE 2018 provided a timely opportunity to re-examine lessons observed in Hurricanes Harvey, Irma, and Maria to ensure the Nation is prepared for the 2018 Atlantic hurricane season.

The NLE 2018 scenario involved a major hurricane that made landfall near Hampton Roads, Virginia, causing severe damage to residences, businesses, and critical infrastructure throughout the Mid-Atlantic. The fictional storm, Hurricane Cora, caused power outages and cascading effects, such as impacts to communications, transportation, water, and hospital systems. After making landfall, the hurricane continued north and northwest through the NCR. The path and intensity of the hurricane caused significant inland flooding, storm surge, and strong winds, resulting in widespread power outages. The hurricane continued north, causing severe impacts throughout Maryland, Pennsylvania, and West Virginia.

Figure 2: Power outage estimates as of 0500, May 7, 2018

Figure 3: NLE 2018 Functional Conduct Timeline

The functional and full-scale portions of NLE 2018 occurred between April 30 and May 10, 2018. Participating organizations were encouraged to exercise throughout this two-week period to meet their organization-specific exercise goals. The first week focused on pre-landfall protective actions and continuity decision-making. Limited exercise play occurred over the weekend. The second week focused on sustained response in parallel with recovery planning, implementation of continuity decisions, and power outages and critical interdependencies. Several local, state, and Federal exercises were integrated into NLE 2018. These exercises included FEMA Region III Atlantic Fury (District of Columbia, Virginia, Maryland, Pennsylvania, Delaware, West Virginia), Vigilant Guard 18-3 and 18-4 (Virginia, Maryland, and the National Guard Bureau), Eagle Horizon(FEMA National Continuity Programs), Clear Path VI (U.S. Department of Energy),

Figure 4: Local Participation in NLE 2018

Ardent Sentry (U.S. Northern Command), Citadel Gale/HURREX (U.S. Navy), Fifth District Hurricane Exercise (U.S. Coast Guard), U.S. Army Corps of Engineers Hurricane Exercise, and Senior Officials Exercise (SOE) 18-3 hosted by the White House for the Principals Committee of the National Security Council. A common exercise scenario and control environment brought together each of these components into one unified exercise.

Key Takeaways

Building a Culture of National Preparedness

The 2017 hurricane season demonstrated the need for integration among partners across the whole community before, during, and after an incident. FEMA leveraged NLE 2018 and its participating organizations as an opportunity to amplify hurricane preparedness messaging to individuals, businesses, and community organizations in advance of the 2018 Atlantic hurricane season.

NLE 2018 provided specific opportunities to further improve the Nation's preparedness, including functional exercise participation from organizations across all levels of government, non-governmental organizations, and the private sector; personnel accountability drills; information sharing regarding financial preparedness concepts; workshops and seminars on individual and family preparedness; and access to individual and family disaster planning tools.

Figure 5: Prince George's County, Maryland Community Emergency Response Team members conduct search and rescue as part of NLE 2018. [Source: Twitter/Prince George's County OEM]

Social media content involving NLE 2018 and hurricane preparedness poured in from across the whole community, including FEMA headquarters and leadership, Federal interagency partners, state and local participants, private sector and voluntary organizations, and individuals, bolstering the FEMA Administrator's strategic goal to "build a culture of preparedness."

Risk-Based Coordination

Federal, state, local, and private sector partners implemented risk-based discussion and decision-making improvements in NLE 2018. Risk-based discussions highlighting "Response Lifelines" across communications, power and fuel, safety and security, health and medical, transportation, food and water, and wastewater sectors were exercised for the first time during NLE 2018. The purpose of this approach is to align key life-sustaining response activities to show inter-relationships between Critical Infrastructure sectors, Emergency Support Functions (ESFs), and core capabilities and ensure a unity of effort. These lifelines represent indispensable services that enable the continuous operation of critical business and government functions and that risk human health, safety, and/or national economic security if compromised or not properly restored. This approach was intended to enhance planning, situational awareness, coordination, and unity of effort across government and private sector response and recovery.

As FEMA continues to develop and expand on the Response Lifelines concept, adjustments to response operations will center on these risk-based areas. Standardized processes including the 1230 Senior Leadership Video Teleconference (VTC) and National Response Coordination Center (NRCC)

Senior Leadership Brief (SLB) will evolve to identify and prioritize risks and limiting factors according to those Response Lifelines.

FEMA and Emergency Support Function (ESF) partners exercised a risk-based format for the 1230 Senior Leadership VTCs on May 3, May 7, and May 8, and saw early success in coordinating with FEMA Region III and affected states to identify high-priority issues for adjudication according to the Response Lifelines.

Private Sector Integration

The 2017 hurricane season demonstrated the necessity for better coordination between government and private sector partners. NLE 2018 included unprecedented levels of engagement across the private and nonprofit sectors, including numerous businesses and NGOs spanning 14 sectors. During the exercise, the National Business Emergency Operations Center (NBEOC) activated and coordinated with 160 private sector, infrastructure, and voluntary partners to establish response priorities and discuss public-private resource sharing and coordination. NLE 2018 also included a tri-sector call among the energy, financial, and communications sectors and five NBEOC calls. These efforts identified numerous lessons to drive improvements in public-private information sharing and coordination for catastrophic incidents. In addition, FEMA hosted a real-world hurricane preparedness webinar that included remarks from the FEMA Region III Administrator and provided information on the National Flood Insurance Program (NFIP) and preparedness strategies designed to ready communities for hurricanes.

Extensive State and Local Participation

NLE 2018 was a true example of Federal support for, state management of, and local execution of disaster preparedness and response operations.

NLE 2018 included participation from all five states in FEMA Region III, 65 local jurisdictions, and the District of Columbia. Maryland, Delaware, Virginia, and the District of Columbia hosted exercises to examine evacuation decision-making and pre-landfall protective actions, and governors hosted real-world media events to promote NLE 2018. The FEMA Region III Regional Administrator hosted multiple calls with state emergency management directors and other state and local officials to coordinate

Regional Exercises Linked to NLE 2018

State and local jurisdictions across FEMA Region III held numerous exercises before, during, and after NLE 2018 functional conduct, including:

- D.C. HSEMA
  - Debris Management Tabletop Exercise (TTX)
  - Medical Surge TTX
  - Commodities Points of Distribution (CPOD) TTX
- Delaware Emergency Management Agency (DEMA) Pre-Landfall TTX
- Maryland Emergency Management Agency (MEMA) Recovery TTX
- Pennsylvania Emergency Management Agency (PEMA) Recovery TTX

Figure 6: FEMA Administrator Brock Long leads a discussion with Federal and state emergency leaders pre-landfall [Source: FEMA]

unified Federal support to state and local partners. Additionally, National Guard components conducted functional and field training events to hone their processes to provide support to their states. This exercise play provided an opportunity for military and civilian agencies at all levels to coordinate response activities.

Leadership Engagement

NLE 2018 included participation from mayors, governors, and senior Federal officials, including the Secretary of Homeland Security and FEMA Administrator. Senior Federal, state, and local leadership actively participated in post-landfall exercise play, to include directing response activities, conducting synthetic media interviews, and coordinating operations during interagency and inter-governmental calls. Additional examples included:

The White House hosted Senior Officials Exercise (SOE) 18-3 for the Principals Committee of the National Security Council to coordinate Federal preparedness activities.

The U.S. Department of Energy (DOE) hosted the Clear Path VI tabletop exercise with more than 75 participants from the public and private sector.

Functional Timeline – Week 1

Monday April 30

- **STARTEX** — Functional exercise play began at 8:00 AM on April 30, 2018.
- **FEMA Region III RRCC** — The Region III Regional Response Coordination Center (RRCC) activated to Level III.
- **FEMA Region III Weather Call and State Director Call** — Region III initiated daily Weather and State Director calls.
- **Rain Event** — A high-rain event impacted the Mid-Atlantic.
- **DHS NOC** — DHS National Operations Center began daily reporting at 5:00 AM and 6:00 PM.

Tuesday May 1

- **Storm Intensifies** — Hurricane Cora became a Category 5 storm.
- **Storm Track Change** — Updated forecast models showed that Hurricane Cora, previously anticipated to make landfall in Northern Florida, now posed a threat to Mid-Atlantic states.
- **SOE 18-3** — White House hosted Senior Officials Exercise 18-3, a Principals-level exercise at 8:30 AM.
- **Maryland TTX** — Maryland hosted Cabinet-level tabletop exercise.

Wednesday May 2

- **FEMA NBEOC Call** — FEMA hosted National Business Emergency Operations Center (NBOEC) calls on May 2-3 and 7-9 at 3:00 PM. Regional Business Emergency Operations Center (RBEOC) members joined NBEOC calls.
- **Hurricane Watch** — The National Hurricane Center issued a Hurricane Watch for areas in Virginia, Maryland, and Delaware.
- **Hurricane Watch** — Hurricane Watch extended to areas of Northern Virginia and the District of Columbia.
- **Evacuation** — Evacuation decision-making started throughout the region.

Thursday May 3

- **FEMA** — FEMA activated to an Enhanced Watch. Region III activated the Regional Response Coordination Center (RRCC) to Simulated Level 1.
- **Virginia TTX** — Virginia hosted pre-landfall senior leadership meeting.
- **Clear Path** — DOE hosted Clear Path Tabletop Exercise.
- **DHS SLG Call** — DHS hosted Senior Leadership Group call with component heads.
- **1230 VTC** — FEMA hosted 12:30 PM Video Teleconference (VTC).
- **NICCL Call** — FEMA activated National Joint Information Center (JIC) and hosted National Incident Communications Conference Line call.
- **OPM Status** — Starting May 3, Federal operating status was determined the evening prior to each exercise day.

Friday May 4

- **Continuity Decision-Making** — Federal departments and agencies conducted decision-making processes as defined in their continuity plans and determined appropriate actions necessary to continue essential functions.
- **DC Exercise** — The District of Columbia conducted a functional exercise with senior leadership.

Saturday May 5

- **Landfall** — Cora made landfall near Hampton Roads, VA as a Category 4 storm at 11:00 PM ET on Friday, May 4.
- **Storm Passes Over DC** — Hurricane Cora passed directly over Washington, D.C. as a Category 2 storm with sustained winds of 100 mph on Saturday at 5:00 PM ET.

Sunday May 6

Limited Exercise Play Over Weekend

Key Player Actions | Component Events | Ground Truth

Functional Timeline – Week 2

Monday May 7

- **Region III PIO Call** — FEMA Region III hosted a Public Information Officer (PIO) call.
- **1230 VTC** — FEMA hosts 12:30 PM Video Teleconference (VTC) with state officials.
- **Region III** — Region III RRCC remained activated at Level 1 and Region III hosted a States Directors with states.
- **DHS SLG Call** — DHS hosted a Senior Leadership Group (SLG) call with component heads.
- **Continuity Actions** — Federal departments and agencies conducted continuity activities to support National Essential Function 6 (NEF 6).
- **FEMA NRCC** — FEMA activated the National Response Coordination Center (NRCC) to Level 1 with all ESF partners on May 7, 8, and 9.
- **Region III State Directors Call** — FEMA Region III continued to host State Directors call with states through May 9.

Tuesday May 8

- **Region III PIO Call** — FEMA Region III hosted a Public Information Officer (PIO) call.
- **Unity of Effort and Unity of Message Calls** — Industry and sector-specific agencies hosted Unity of Effort and Unity of Message calls.
- **NICCL Calls** — FEMA hosted National Incident Communications Conference Line (NICCL) calls on May 3, 7, 8, and 9 at 11:00 AM.
- **1230 VTC** — FEMA hosted 12:30 PM Video Teleconference (VTC) with state officials.

Wednesday May 9

- **Maryland Exercise** — Maryland held short-term recovery tabletop exercise.
- **ESCC Call** — Electricity Subsector Coordinating Council (ESCC) held a call with Secretary of Energy and member CEOs.
- **Response and Recovery** — Participating organizations explored the interplay between response and recovery operations.
- **Utility Restoration** — Power and tele-communication restoration operations continued.
- **Pennsylvania Exercise** — Pennsylvania Emergency Management Agency held spring exercise.
- **Region III PIO Call** — FEMA Region III hosted a Public Information Officer (PIO) call.

Thursday May 10

- **Critical Interdependencies** — Players continued to manage cascading impacts to inter-dependent sectors due to ongoing power outages.
- **Mutual Aid and Assistance** — Players leveraged Emergency Mutual Aid Compact (EMAC) and mutual aid agreements.
- **Flooding Begins to Recede** — Major rivers, such as the Potomac, Anacostia, and Rappahannock, peak and floodwaters started to recede.
- **ENDEX** — Functional exercise play ended at 2:00 PM on Thursday, May 10, 2018.

Friday May 11

Hotwash activities were held on Friday, May 11, 2018.

Key Player Actions | Component Events | Ground Truth

Continuity in Natural Disasters

As part of NLE 2018, participating organizations at all levels of government tested their continuity capabilities to ensure they could execute essential functions even if their primary facilities were damaged or unavailable. Departments and agencies coordinated response and recovery activities from numerous alternate locations throughout the exercise to examine their ability to provide critical services to the American people during a major storm. Private sector participants also used this opportunity to test their business continuity plans.

Innovative Use of Technology

NLE 2018 included a suite of dynamic online tools and resources to visualize ground truth and scenario data. The tools displayed storm impacts, power outages, evacuation routes, traffic data, and preliminary damage assessments, enabling players to access realistic data to drive exercise play. FEMA's Geospatial Platform (GeoPlatform) included a situational awareness viewer, enabling players to determine power outages by county and census tract; identify key school, health, transportation, and other critical infrastructure within a selected area; and obtain population and access and functional needs data from the Census, HHS emPOWER, and Social Vulnerability Index. The GeoPlatform housed two live incident journals for NLE 2018—the Hurricane Cora Incident Journal and the NLE 2018 National Business Emergency Operations Center (NBEOC) and Private Sector Incident Journal. Exercise controllers also created real-time Geographic Information System (GIS) products to support player requests for new or expanded scenario effects.

Figure 7: The Hurricane Cora Incident Journal provided real-time updates on impacts to infrastructure and other data [Source: FEMA GeoPlatform]

Preparedness Messages on Social Media

Hurricane preparedness social media content shared by FEMA reached over 180,000 individuals on Twitter and almost 150,000 individuals on Facebook. Both the Secretary of Homeland Security and FEMA Administrator tweeted on April 30, 2018, to start off NLE 2018. Other active social media used to promote hurricane preparedness during NLE 2018 included:

- **Federal interagency partners**: US EPA, FEMA Region III, FEMA Region III Administrator
- **State and local participants**: Virginia Department of Emergency Management (VDEM), D.C. Homeland Security and Emergency Management Agency (D.C. HSEMA), Governor of Virginia, Ready Fairfax, Ready PA
- **Private sector and voluntary organizations**: VA Association of Voluntary Organizations Active in Disaster (VOAD), Humanity Road

FEMA Region III and D.C. HSEMA remained active on Twitter and Facebook throughout NLE 2018 and co-hosted a real-world Hurricane Preparedness Twitter Chat on May 2, 2018, joined by Maryland Emergency Management Agency (MEMA), Pennsylvania Emergency Management Agency (PEMA), and VDEM. The chat reached over one million individuals and garnered over four million impressions. In addition, over 38,000 individuals downloaded the FEMA App.

Figure 8: DHS Secretary Kirstjen Nielsen and FEMA Administrator Brock Long both tweeted in support of NLE 2018

EVALUATION METHODOLOGY

NLE 2018 provided the opportunity to examine and validate the Nation's ability to protect against, respond to, and recover from a major hurricane.

NLE 2018 Exercise Objectives and Focus Areas

In coordination with planning partners from across the whole community, NLE planners identified four exercise objectives for NLE 2018:

01 PRE-LANDFALL PROTECTIVE ACTIONS	Examine and validate the capabilities of Federal, state, local, tribal, and territorial governments, as well as private industry, nongovernmental organizations, community organizations, and members of the public, to take **coordinated and inclusive protective actions prior to a projected major hurricane landfall** in accordance with applicable plans, policies, and procedures.
02 SUSTAINED RESPONSE IN PARALLEL WITH RECOVERY PLANNING	Demonstrate and assess the ability of Federal, state, local, tribal, and territorial governments, in coordination with private sector, philanthropic, and nongovernmental partners, to conduct **inclusive post-hurricane landfall response operations** and simultaneously conduct **inclusive recovery planning activities**.
03 CONTINUITY IN A NATURAL DISASTER	Demonstrate and assess the ability of Federal and non-federal government organizations to **implement continuity plans and perform essential functions** appropriate for incident conditions to sustain National Essential Function 6 (domestic response and recovery).
04 POWER OUTAGES AND CRITICAL INTER-DEPENDENCIES	Examine and validate the capabilities of Federal, state, local, tribal, and territorial governments to **support the energy sector** and **synchronize efforts** to manage the consequences of **long-duration power outages** and **critical interdependencies**.

The NLE 2018 planning team worked closely with FEMA's National Preparedness Assessment Division (NPAD), the Emergency Support Function Leadership Group (ESFLG), the Recovery Support Function Leadership Group (RSFLG), and the Continuity Advisory Group (CAG) to identify focus areas from ongoing real-world improvement efforts that align with each of the four exercise objectives. The NLE 2018 planning community vetted these focus areas, and the FEMA Administrator approved this evaluation structure in the NLE 2018 Exercise Directive. The focus areas represent the top priorities for evaluation during the exercise.

The National Evaluation Team developed exercise evaluation guides (EEGs) dedicated to the examination of each focus area. Following the evaluation process set forth in Homeland Security Exercise and Evaluation Program doctrine, each EEG lists relevant critical tasks as dictated by national-level plans, policies, and procedures. The EEGs were designed to aid the National Evaluation Team in

assessing departments' and agencies' capabilities to accomplish a mission, function, or objective associated with a given focus area.

A team of evaluators deployed during NLE 2018 to observe exercise conduct at multiple exercise venues, including states and component exercises, and captured their observations using the EEGs. The integration of 11 Venue Control Cells (VCCs) permitted greater participation from the whole community and facilitated examination of a wide range of policy and planning activities. Each component exercise tested exercise-specific objectives that mapped to the NLE 2018 objectives, as well as Principals' Objectives #5: Recovery Coordination and #7: Catastrophic Incidents.[2] The National Evaluation Team worked closely with each component exercise to ensure a coordinated approach to the evaluation of NLE 2018 objectives.

Figure 9 outlines the focus areas that the evaluation team used to identify strengths and opportunities for continued operational improvement in alignment with ongoing analysis of findings from the 2017 hurricane season. The NLE 2018 findings and "Recommended Outcomes" outlined earlier in this report provide suggested end states for individual departments, agencies, and components to achieve continued improvement.

Figure 9: NLE 2018 Evaluation Objectives and Focus Areas

[2] Principals Objectives are a common set of strategic objectives that anchor the two-year National Exercise Program cycle.

CONCLUSION

Over the first two weeks of May, NLE 2018 allowed players to examine lessons from Hurricanes Harvey, Irma, and Maria and improve operations and coordination across all levels of government, the private sector, and the public in advance of the 2018 hurricane season. Functional exercise play and numerous related activities hosted by partners across the whole community examined four objectives: pre-landfall protective actions, sustained response in parallel with recovery planning, continuity in a natural disaster, and power outages and critical interdependencies. NLE 2018 provided an opportunity to examine these capabilities, address previously identified issues, and test innovative approaches to recurring challenges.

More than 450,000 individuals participated in NLE 2018 and stakeholder engagement carried the message of hurricane preparedness to many more. The two weeks of exercise conduct and months of related events improved the Nation's readiness for the 2018 hurricane season and fostered a national culture of preparedness. The tremendous coordinated effort to conduct NLE 2018 also provided a chance to evaluate the plans, policies, and procedures that would support a real-world hurricane response and recovery effort. The best practices and opportunities for improvement observed in NLE 2018 and outlined in this report offer all preparedness stakeholders a list of potential action items to address in their continued preparedness efforts.