National Level Exercise 2022

After-Action Report Executive Summary

July 2023

Letter from the Administrator

The unprecedented scale of the COVID-19 pandemic and wildfires in the Pacific Northwest stretched response and recovery capabilities at all levels of government in 2022 – and subsequently is transforming the way emergency managers prepare for and respond to disasters. The National Level Exercise (NLE) 2022 took a unique approach to an NLE – shifting from a multi-day, full-scale or functional exercise to a series of 55 separate discussion-based engagements across the full calendar year in recognition of these real-world challenges.

NLE 2022 built upon the successes and challenges of the Cascadia Rising exercise (2016) and brought together more than 6,400 personnel to examine the ability of all levels of government, Tribal Nations, private industry, and nongovernmental organizations to protect against, respond to, and recover from a large rupture along the Cascadia Subduction Zone (CSZ) with subsequent tsunamis and a Spill of National Significance (SONS). Partners joined FEMA to examine five national-level objectives: (1) Catastrophic Disaster Preparedness, (2) Stabilization and Initial Recovery, (3) National Resource Prioritization and Adjudication, (4) Intermediate and Long-Term Recovery, and (5) Strategic Coordination.

Overarching strengths were identified through the evaluation of all NLE 2022 engagements. These strengths are existing capabilities that stakeholders recognized should be sustained:

1. NLE 2022 built and sustained national preparedness through state, local, Tribal Nations, private sector, and nonprofit exercise participation.

2. NLE 2022 continued the leadership engagement that is needed to manage the complex response to a rupture of the CSZ and a SONS given the multiple organizations and authorities involved.

3. NLE 2022 allowed participants to leverage preparedness data and lessons learned from previous large-scale disasters and examine existing plans for updates following exercise conduct.

Exercises like NLE 2022 provide an outstanding opportunity for continuous improvement. I look forward to our continued work together as we build a stronger agency and a more prepared and resilient nation.

Deanne Criswell

Administrator

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NLE Background

The NLE is the nation's key exercise for validating progress toward promoting and sustaining a prepared nation, required to prepare for, respond to, and recover from catastrophic events. NLEs are a progressive build of preparedness activities over the four-year cycle of the National Exercise Program (NEP), which culminate in two operations-based exercises (every two years). The scale/scope of each NLE can vary.

The Post-Katrina Emergency Management Reform Act (PKEMRA) of 2006 addressed the shortfalls in the preparation for and response to Hurricane Katrina by more clearly defining FEMA's role in emergency management. PKEMRA also mandated the President to establish and maintain a National Preparedness Goal and National Preparedness System to better prevent, respond to, recover from, and mitigate against disasters of all kinds, including acts of terrorism.[1] As a key component of the National Preparedness System and the NEP, the NLE is congressionally mandated in PKEMRA, which states that:

- The FEMA Administrator periodically, but not less than every two years, perform national exercises to test and evaluate:

  o The capability of the federal, state, local, tribal, and territorial governments to detect, disrupt, and prevent threatened or actual catastrophic acts of terrorism, especially those involving weapons of mass destruction.

  o The readiness of federal, state, local, tribal, and territorial governments to prepare, respond, and recover in a coordinated and unified manner to catastrophic incidents.

Every two years, NLEs alternate between scenarios focused on adversaries and natural disasters. These two types of NLEs allow the nation to build capability across both types of threats to our country. NLE 2022 fulfilled this requirement and served as the culminating event for the 2021-2022 cycle of the NEP.

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

Exercise Overview

In its entirety, NLE 2022 included 55 engagements and brought together more than 6,400 individuals across the whole community to examine the ability of all levels of government, Tribal Nations, private industry, and nongovernmental organizations to protect against, respond to, and recovery from a large rupture along the CSZ fault that would directly impact the United States in the Pacific Northwest and result in subsequent tsunamis and a SONS.
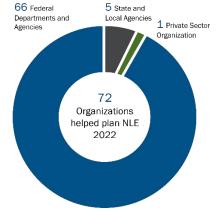

Figure 1: Organizations that Helped Plan NLE 2022

Figure 2: Participation Metrics

The NLE 2022 scenario involved a 9.0 magnitude earthquake that rocked the Pacific Northwest causing the 700-mile CSZ Fault Line to completely rupture. Minutes after the quake, the National Tsunami Warning Center issued the first tsunami warning for California, Oregon, Washington, and British Columbia, Canada. Aftershocks of 7 or greater magnitude were experienced within 24 hours and the damage across the region was widespread.

Tsunami waves began arriving in as little as 15 minutes and for up to 16,000 people, evacuation was not an option. Catastrophic waves of 30+ feet, much larger than those from a distant quake, struck the coast within 25–30 minutes, causing loss of life and widespread damage to property. Many Puget Sound communities experienced some inundation, and ports experienced inundation along with extreme currents.
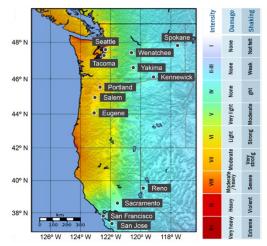

Figure 3: Image Depicting the Expected Severity of Damage from the Earthquake

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Given real-world events such as the COVID-19 pandemic and wildfires in the Pacific Northwest, NLE 2022 took a unique approach to a National Level Exercise – shifting from a multi-day, full-scale or functional exercise to a series of discussion-based exercises across the full calendar year. When originally conceptualized in 2020 and 2021, NLE 2022 was set to be an integrated, four-day functional exercise, but in recognition of these real-world challenges, on October 4, 2021, the FEMA Administrator approved an evolution in the approach for NLE 2022. Planning evolved to focus on the delivery of a series of targeted engagements, including seminars, workshops, tabletop exercises (TTXs), functional exercises, drills, and Senior Officials' Exercises (SOEs)[2] that engaged high-level federal interagency and White House officials as part of NLE 2022. Engagements were conducted between July 2021 and December 2022. The NLE 2022 exercise methodology can be found at the end of this document.

Figure 4: Number of Engagements Conducted by Type[3]

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[2] The SOE Program is a joint preparedness initiative between the National Security Council Staff and FEMA's National Exercise Division. It is comprised of objectives-driven, discussion-based exercises that reflect senior leadership priorities and align to the National Exercise Program cycle of Principals' Strategic Priorities.

[3] U.S. Department of Homeland Security. Homeland Security Exercise and Evaluation Program (HSEEP). January 2020.

Identified Overarching Strengths

The NLE 2022 National Evaluation Team identified overarching strengths, which are cross-cutting themes determined through the evaluation of all engagements. These strengths are existing capabilities that stakeholders identified that meet the national-level objectives and focus areas.

Strength 1: NLE 2022 built and sustained national preparedness through state, local, Tribal Nations private sector, and nonprofit exercise participation.

Due to the magnitude of the exercise scenario, FEMA leveraged NLE 2022 as the impetus to bring together various partners and organizations – some for the first time. Each engagement provided a platform for key stakeholders to build relationships, gather and share information, and think holistically about collective response and recovery efforts for a CSZ rupture and SONS. Overall, 6,415 individuals and 574 departments and agencies, 25 Tribal Nations, and organizations participated in NLE 2022.

Strength 2: NLE 2022 continued the leadership engagement that is needed to manage the complex response to a rupture of the CSZ and a SONS given the multiple organizations and authorities involved.

NLE 2022 validated the management required under the Stafford Act, the National Response Framework, and the National Oil and Hazardous Substances Pollution Contingency Plan to examine coordination structures and information sharing mechanisms. Leadership engagement to synchronize across those structures and share strategic and operational information will be crucial in this type of scenario. NLE 2022 led to greater socialization of these key issues with federal, state, local, and tribal government leadership.

Strength 3: NLE 2022 allowed participants to leverage preparedness data and lessons learned from previous large-scale disasters and examine existing plans for updates following exercise conduct.

NLE 2022 engagements combined with response and recovery experiences from large-scale, real-world activations such as wildfires, hurricanes, and the COVID-19 pandemic emphasized the need and will serve as the foundation to update plans, policies, procedures, and follow-on exercises to examine and validate capabilities.

Table of Findings

The findings from NLE 2022 will contribute to the agency's efforts to continuously promote and sustain a prepared nation, by achieving our nation's National Preparedness Goal.

> A secure and resilient nation with the capabilities required across the whole community to prevent, protect against, mitigate, respond to, and recover from the threats and hazards that pose the greatest risk. – U.S. Department of Homeland Security. National Preparedness Goal. Second Edition, September 2015.

The findings below are derived from exercise player actions and leadership decisions throughout exercised conduct. Each key finding identifies several strengths and opportunities for improvement for our partners to make in potential real-world response and recovery operations, similar to those evoked by the NLE 2022 scenario.

Table 1: NLE 2022 Key Findings

NLE 2022 Key Findings	
Objective 1: Catastrophic Disaster Preparedness	
The Catastrophic Disaster Preparedness national-level objective was measured by the planning community's involvement with NLE engagements.	
Objective 2: Stabilization and Initial Recovery	
1	Steady state identification of family reunification centers, evacuee support centers, commodity point of distribution locations, and nonstandard shelter locations supports more efficient survivor management.
2	Familiarity with the seismic capability of a region's critical infrastructure (and with tools such as geographic information system mapping products) helps planners predetermine and prioritize assessments of critical infrastructure assets and generates greater efficiency throughout stabilization.
3	Coordination between localities, Tribal Nations, state departments, and their respective Emergency Support Function members increases situational awareness and spotlights needs more quickly.
Objective 3: National Resource Prioritization and Adjudication	
4	FEMA's continued work with federal, state, local, and Tribal Nations partners to maintain an accurate account of vulnerable locations and expected resource needs, as well as to understand the availability of nontraditional transportation routes that may be needed for resource delivery, helps allocate resources rapidly and lessens delivery delays post impact.
Objective 4: Intermediate and Long-Term Recovery	
5	Using platforms such as the Essential Elements of Information dashboards, the Public Private Partnership Platform, the National Business Emergency Operation Center Dashboard, and MAX TRAX to share high-level assumptions of the status of critical infrastructure and survivor needs across

	government and the private sector, contributes to increased situational awareness and identification of restoration and recovery needs more efficiently.
6	Developing and maintaining strong relationships between recovery agencies, tribes, organizations, and local communities during steady state operations establishes communication lines that will be key to managing expectations during the housing recovery process following a CSZ rupture.
7	Identifying long-term housing infrastructure needs, such as water and sewer services, with an emphasis on equity early on, aids in the housing reconstruction and recovery process.
8	Developing plans for a backup system for financial transactions that can be used in situations of power loss or limited communication abilities in impacted jurisdictions will limit the disruption to necessary monetary transactions.
9	Creating job opportunities for returning previously evacuated survivors in their home or tribe state aids in the management of expectations as the economy shifts and is revitalized.
Objective 5: Strategic Coordination	
10	State and Tribal Nation Recovery Support Function coordination with other recovery organizations results in a common strategic and operational planning approach, allowing for a more coordinated and expeditious response to a CSZ rupture.
11	Jurisdictions that pre-identify staging site locations and co-locate federal, Tribal Nations, military state staging areas have increased situational awareness and improved resource deployment strategies.

Evaluation Methodology

In coordination with planning partners from across the whole community and across all NLE 2022 engagements, five national-level exercise objectives were identified for NLE 2022 (Figure 5).
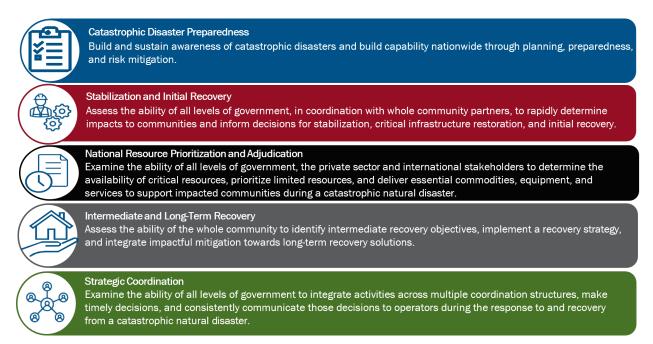
Catastrophic Disaster Preparedness
Build and sustain awareness of catastrophic disasters and build capability nationwide through planning, preparedness, and risk mitigation.

Stabilization and Initial Recovery
Assess the ability of all levels of government, in coordination with whole community partners, to rapidly determine impacts to communities and inform decisions for stabilization, critical infrastructure restoration, and initial recovery.

National Resource Prioritization and Adjudication
Examine the ability of all levels of government, the private sector and international stakeholders to determine the availability of critical resources, prioritize limited resources, and deliver essential commodities, equipment, and services to support impacted communities during a catastrophic natural disaster.

Intermediate and Long-Term Recovery
Assess the ability of the whole community to identify intermediate recovery objectives, implement a recovery strategy, and integrate impactful mitigation towards long-term recovery solutions.

Strategic Coordination
Examine the ability of all levels of government to integrate activities across multiple coordination structures, make timely decisions, and consistently communicate those decisions to operators during the response to and recovery from a catastrophic natural disaster.

Figure 5: NLE 2022 National-Level Objectives

Each national-level objective is accompanied by focus areas (Figure 6) that provide the framework to analyze the national-level objectives. These focus areas were identified through robust engagement with the NLE 2022 planning community and approved by the FEMA Administrator. These focus areas represented the top priorities for evaluation during the exercise.
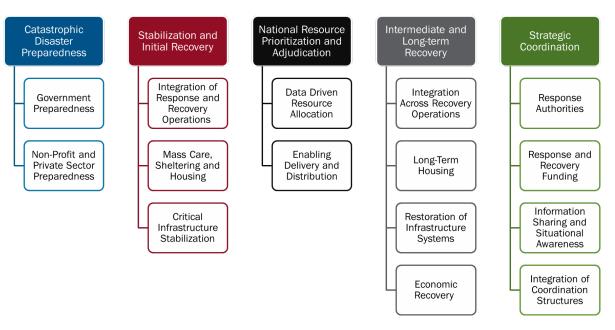
Catastrophic Disaster Preparedness	Stabilization and Initial Recovery	National Resource Prioritization and Adjudication	Intermediate and Long-term Recovery	Strategic Coordination
Government Preparedness	Integration of Response and Recovery Operations	Data Driven Resource Allocation	Integration Across Recovery Operations	Response Authorities
Non-Profit and Private Sector Preparedness	Mass Care, Sheltering and Housing	Enabling Delivery and Distribution	Long-Term Housing	Response and Recovery Funding
	Critical Infrastructure Stabilization		Restoration of Infrastructure Systems	Information Sharing and Situational Awareness
			Economic Recovery	Integration of Coordination Structures

Figure 6: NLE 2022 National-Level Objectives and Focus Areas

Based upon the NLE 2022 National Evaluation Plan, a member of the National Evaluation Team attended each engagement to observe and record information relative to the national-level objectives. Following the engagement, the National Evaluator(s) used findings to develop an individual engagement-specific national-level Summary of Conclusions (SOC). The National Evaluation Team consolidated findings from the SOCs each quarter into a rolling Initial, and later Interim Assessment Report (IAR) which was reviewed by the Exercise Specific Working Group (ESWG).[4] Throughout NLE 2022 conduct, the National Evaluation Team shared IAR findings with engagement planning teams to integrate into upcoming engagements and meet all national-level objectives and focus areas. The lack of a functional exercise limited the National Evaluation Team's ability to validate an integrated timeline and identify all interdependencies from response to recovery. Upon completing all engagements, the National Evaluation Team used the data gathered to develop the national-level NLE 2022 After-Action Report (AAR) and forthcoming Improvement Plan to drive change. This process is illustrated in Figure 7 below.

[4] The ESWG is comprised of senior representatives from states, Region 10, and key federal partners. The ESWG is responsible for coordinating and managing NLE 2022 exercise planning to meet national exercise objectives.
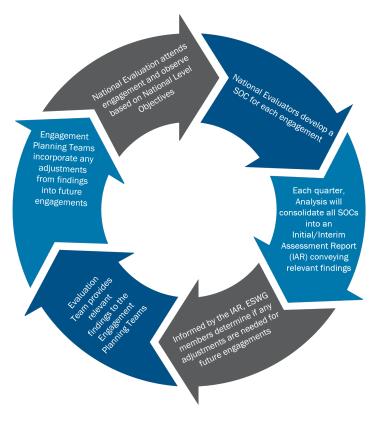
Figure 7: NLE 2022 National-Level Evaluation Approach

The National Evaluation Team also leveraged a Collection Analysis Plan to collect, share, and manage information in a systematic manner to identify trends across the entirety of NLE 2022. Findings and analysis that informed this AAR include participant feedback forms, debriefs and hotwashes, participation metrics, document reviews, and the direct observation of conduct/play through use of Exercise Evaluation Guides designed per Homeland Security Exercise and Evaluation Program evaluation methodology and raw notes.

Conclusion

Thanks to the efforts of more than 6,400 individuals; 66 federal department and agencies; 129 state department and agencies; 142 local organizations; 25 Tribal Nations; 144 private sector organizations; 68 nonprofit organizations; NLE 2022 successfully exercised response and recovery operations for a catastrophic CSZ rupture and SONS.

The exercise identified overarching strengths, including promoting and sustaining national preparedness through state, local, Tribal Nations, private sector, and nonprofit participation; leadership engagement to synchronize and share strategic and operational information; and the use of preparedness data and lessons learned from previous large-scale disasters and activations.

The exercise identified 11 key findings, as highlighted above, with themes of mass care services; identification, stabilization, and recovery of critical infrastructure; operational coordination and sharing of situational awareness and assessments; identification of recovery funding opportunities and how to best share those with the public; and pre-identification and coordination of staging areas.

The key findings highlighted in this report will be used to develop the NLE 2022 Improvement Plan which will identify corrective actions to be implemented throughout the preparedness cycle and to be validated in future trainings, exercises, or real-world events to sustain and propagate successes.