



2021 Annual Report

Radiological Emergency Preparedness Program

June 2022



FEMA

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Director's Letter



The year 2021 was a big recovery year for FEMA Technological Hazards Division (THD) and the Radiological Emergency Preparedness Program (REP Program). The drills, trainings, meetings and exercises that were postponed, canceled or performed virtually in 2020 resumed in person or in hybrid formats in 2021. Despite challenges with new coronavirus disease (COVID-19) variants necessitating new restrictions and varying state-specific public safety requirements, we collectively persevered and accomplished many significant goals. We continued to adapt and utilize the tools available to communicate and collaborate with one another and support all the communities whose public health and safety we strive to ensure.

With FEMA regional offices leading the way, we resumed critical validation and assessment of the capabilities of offsite response organizations by evaluating biennial exercises, out-of-sequence drills, reviews of REP plans and annual letters of certification. I'm very proud of the regional managers and their staff for their tireless efforts in 2021 to make certain that offsite reasonable assurance was maintained despite the ongoing challenges posed by the public health emergency.

The REP Program focused on two particularly important areas in 2021: (1) ensuring equity and inclusion and (2) leveraging data analytics to inform the best and most efficient allocation of our program's resources. The Biden Administration identified diversity, equity, inclusion and accessibility as priorities for the federal departments to incorporate into the delivery of their respective programs, and the REP Program is no exception. In 2021, we made efforts to engage with partners and stakeholders to formulate plans and strategies that optimize our ability to support all REP communities, to include tribal and underserved, in a fair and consistent manner. These efforts will continue in 2022 and beyond.

I'm proud to share that the REP Program made great strides in 2021 using data analytics to guide decisions pertaining to the allocation of resources, targeted training and technical assistance in communities where gaps in target capabilities have been identified by FEMA during our continual assessment process. This expanded use of data will ensure that programmatic decisions are made in a more objective, effective and efficient manner.

The accomplishments presented in this report are a testament to the unwavering commitment of the entire REP community – both public and private sector organizations and individuals – to unite and collaboratively work to support our common goals of building resilient communities and protecting residents' health and safety.

Sincerely,

A handwritten signature in black ink that reads "Erin Hoffman".

Erin Hoffman

Director, Office of National Exercises and Technological Hazards

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1. Executive Summary

The FEMA Technological Hazards Division (THD) exists to help the nation address the unique requirements posed by technological hazards. The strategic imperative for THD is to engage staff, partners and stakeholders in the expanding and increasingly complex aspects of this broader mission while continually improving execution of our current responsibilities to communities. FEMA objectives — *grow our people, embrace new technology, build strong teams, and work smarter and better* — continue to shape and guide our important work. The Radiological Emergency Preparedness (REP) Program — managed by THD REP Program (REPP) Branch — assists state, local, tribal and territorial (SLTT) governments in developing and implementing offsite radiological emergency preparedness activities within the emergency planning zones (EPZ) of U.S. Nuclear Regulatory Commission (NRC)-licensed commercial nuclear power facilities.

This report provides an overview of the program, showcases significant accomplishments, and highlights the engagement and impact of the program within REP communities. Partnerships have been historically critical to the ongoing success of the REP Program. This report summarizes what the REP Program brings to the emergency preparedness community as it continues to evolve, as well as provides examples of strong relationships, collaborative efforts and impacts on all hazards from the local level.

REP Program Highlights

- The Data Analytics Team made progress in 2021 by developing and publishing a total of three internal Tableau-based dashboards — the Regional Overview Dashboard, the Senior Leadership Dashboard and the Training Dashboard. Throughout 2021, the Data Analytics Team provided nine Regional Overview Dashboard demonstrations and held follow-up meetings with all nine regions that participated in the FEMA REP Program, totaling 21 regional engagements. The team provided a combined total of seven walk-throughs of the Senior Leadership and Training Dashboards for THD staff. The Data Analytics Team established a centralized FEMA Tableau environment and a site permissions system to ensure that the appropriate FEMA staff can access the dashboards. Additionally, the team developed user guides and other relevant materials to accompany each dashboard to enhance the user’s understanding of the dashboards. Toward the end of calendar year 2021, the Data Analytics Team compiled feedback received for each dashboard product and created a road map for the next iteration of tools with a target completion date of early 2022.
- The REP Program launched a Geospatial Information System (GIS) Initiative with enhancements made in 2021 that included streamlining and maintaining the National REP Program Public Information Map (PIM) application, launching a beta version of the internal-facing Executive Level Overview Dashboard to provide information about incidents to senior leadership, and kicking off an outreach program to produce videos on how to use features in the PIM application geared toward external users. GIS also supported the virtual Preliminary Capabilities Assessment (PCA) and disaster-initiated review (DIR) process for the Waterford 3 and Grand Gulf sites and calculated 10- and 50-mile population estimates for each site using the 2020 U.S. Census data.

- After supporting 14 National Response Coordination Center (NRCC) deployments in 2020, FEMA created the THD Technical Specialist Desk Standard Operating Procedure to enable consistent performance of duties during activations and train new technical specialists in their NRCC roles and responsibilities.
- FEMA developed a qualification job title and evaluator position task book for a REP Program exercise evaluator that could be used by FEMA and any authority having jurisdiction to augment the number of evaluators and formally validate and document personnel qualifications.
- The REP Program began to establish a process to train FEMA staff on how to better engage tribal communities and increase tribal awareness of the REP Program.
- The REPP Branch Training Section revised course content to align with the current 2019 REP Program Manual (RPM) and FEMA regulations. FEMA updated a total of 10 courses.
- The Engineering and Technology Section reviewed, approved and gained NRC acceptance of four nuclear power plant proposals to transition legacy alert and notification systems to the Integrated Public Alert and Warning System (IPAWS).
- FEMA and regional REP Program staff evaluated a total of 44 exercises during 2021, a 193% increase from 2020 and 14 more exercises than the annual average.
- FEMA staff across regions continued to conduct plan and procedure reviews to assist with the transition from NUREG-0654/FEMA-REP-1, Rev. 1 to NUREG-0654/FEMA-REP-1, Rev. 2.

2. Introduction to the REP Program

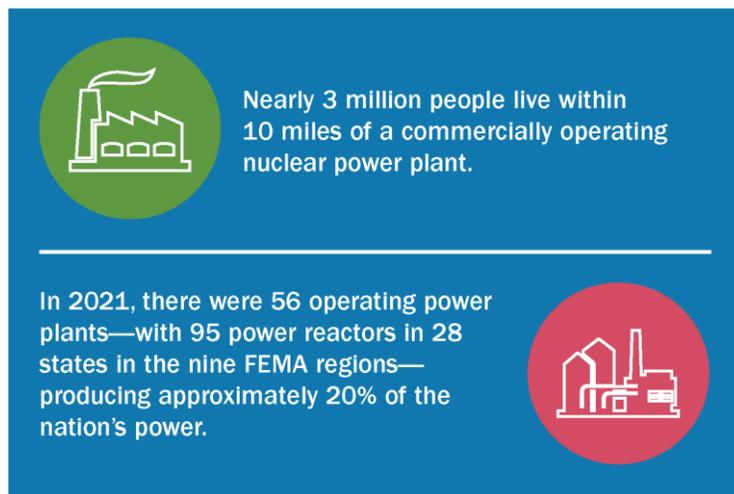


Figure 1. Nuclear Power Plants in 2021

The REP Program refers to both FEMA and NRC programs that administer emergency preparedness for commercial nuclear power plants and surrounding areas and encompasses the plans, training,

exercises and resources necessary to prepare emergency response personnel to rapidly identify, evaluate and respond to radiological emergencies. To help ensure that the health and safety of people living near commercial nuclear power plants would be adequately protected in the event of a nuclear power plant accident, FEMA established the REP Program. Through this program the agency:

- Educates residents in neighboring communities about how to prepare for the possibility of a nuclear power plant accident and dangerous radiation emission.
- Coordinates the national effort to provide SLTT governments with planning, training and exercise guidance and policies to increase their capability to prevent, protect against, mitigate the effects of, respond to and recover from commercial nuclear power plant incidents.
- Evaluates the emergency plans and level of preparedness of SLTT governments, applicants and licensees to respond to a nuclear accident within the EPZ surrounding, outside of, and beyond the boundaries of a nuclear power plant.

2.1. Reasonable Assurance

Approved state and local plans and procedures must be determined to adequately protect public health and safety by providing reasonable assurance that appropriate protective measures can be taken offsite in the event of a radiological emergency. FEMA validates reasonable assurance using a holistic assessment strategy for preparedness that meets the intent of the planning standards of 44 CFR § 350. The approach uses specific objectives and capability targets that support the assessment of core capabilities. FEMA will make its determination of suitability through the support of other federal agencies, as necessary, by providing staff assistance visits (SAVs), conducting training, and observing and evaluating drills and exercises. FEMA also relies on plan reviews and annual letters of certification (ALC) to develop a recommendation of reasonable assurance.

When improvements or corrections are needed, FEMA works closely with federal and SLTT governments and industry stakeholders to resolve the issue(s). FEMA assesses preparedness on an ongoing basis and reports on the overall state of preparedness biennially in the Biennial Preparedness Report, which is supported by input from offsite response organizations.

3. Inside the REP Program Branch

The REPP Branch is the arm of FEMA THD responsible for implementing the program from the headquarters level. The REPP Branch is led by the branch chief and deputy branch chief and divided by three sections: Operations, Planning and Training. All nine FEMA regions have a Technological Hazards Branch, led by a branch chief and Regional Assistance Committee (RAC) Chair, which is responsible for implementing the REP Program in coordination with nuclear power plants and offsite response organizations at the regional level. There is no REP Program in FEMA Region 8.

3.1. Operations Section

The Operations Section of the REP Program ensures that REP exercises are designed, conducted and evaluated and that after-action items are documented and corrected in a manner that strengthens state and local core capabilities as defined by the National Doctrine, composed of the [National Preparedness Goal and National Preparedness System](#), [National Planning Frameworks](#), and [Presidential Policy Directives \(PPDs\)](#). The Operations Section also specializes in the radiological health physics aspects of the reasonable assurance process and the specialized planning needed for exercise variations.

3.1.1. PURPOSE

The Operations Section provides support and innovative tools for SLTT governments to enhance their emergency management programs; strengthen their ability to execute the full spectrum of activities under the National Preparedness System; and effectively mitigate, respond to and recover from the effects of incidents involving commercial nuclear power plants.

3.1.2. RESPONSIBILITIES

- Partner with other federal agencies and FEMA organizations that manage exercises to leverage resources and expertise. Partners include the NRC, the U.S. Department of Energy (DOE); the U.S. Environmental Protection Agency (EPA); the U.S. Department of Agriculture (USDA); and the U.S. Department of Homeland Security (DHS), including members of the Federal Radiological Preparedness Coordinating Committee (FRPCC). Supporting FEMA organizations include the National Exercise Division; the Office of Response and Recovery; and the Chemical, Biological, Radiological and Nuclear (CBRN) Office that handle exercises to leverage resources and expertise.
- Provide oversight and evaluation of the emergency preparedness of local and state response assets and planning for communities surrounding the 56 commercial nuclear power plants in the continental United States.
- Advise government leadership and coordinate engagement with agencies during a radiological event through the NRCC.
- Oversee the health and safety preparedness of citizens living near commercial nuclear power plants to ensure citizens would be protected in the event of a nuclear power plant accident.
- Provide a post-disaster event technical review (disaster-initiated review) of preparedness as a requirement for a nuclear power plant restart or continued operation.
- Inform and educate the public about radiological emergency preparedness.
- Provide technical support for SAVs and act as technical evaluators and team leads at exercises and drills, as well as perform technical scenario reviews.

3.1.3. HIGHLIGHTS AND ACTIVITIES

National Response Coordination Center: THD Watch Desk

The NRCC has a THD Watch Desk managed by a technical specialist, which was activated during Hurricane Henri on August 20, 2021, and was demobilized three days later. On August 28, 2021, the THD Watch Desk was reactivated as part of the NRCC Level 1 activation for Hurricane Ida. During this activation, the watch officer monitored the track of Hurricane Ida in real time as it made its way to Louisiana and Mississippi. The watch officer also provided updates from both the National Hurricane Center and NRC to FEMA leadership. The storm tracked northeast and impacted operations in FEMA Regions 2 and 3. Although the Waterford 3 nuclear power plant planned to shut down due to hurricane-force winds, the watch officer still reported potential impacts to offsite communities to senior leadership and regional liaisons in order to determine any shortfalls. The watch officer also relayed information to the NRCC Situational Awareness Section for inclusion in the daily FEMA Senior Leadership Briefing and to FEMA leadership. The THD Watch Desk deactivated on September 6, 2021, as the NRCC transitioned to normal watch operations.

The THD Watch Desk watch officer shared lessons learned from the Hurricane Ida experience in a variety of ways, including through the PCA and DIR process during the NRC Steering Committee Meeting on September 3, 2021. The watch officer also created a standard operating procedure for the THD Technical Specialist Desk to educate and train FEMA staff on the proper procedures to follow while on duty. Such procedures included the position description, contact information, examples of paperwork, schedule of NRCC activities, visual maps and equipment instructions (WebEOC, telephone, etc.). On December 3, 2021, the Operations Section established an automated NRCC Technical Specialist Roster calendar in FEMA SharePoint for FEMA THD staff to view and sign up for available shifts. This calendar provides a faster and more transparent deployment process for watch officers.

Exercise Support

The Operations Section ensures that REP exercises are designed, conducted and evaluated, and that after-action items are documented and corrected, in a manner that strengthens state and local core capabilities as defined by National Doctrine. Members of the Operations Section also support biennial plume exercises and functional drills as non-technical and technical evaluators. The Operations Section supports the offsite response organizations by providing technical guidance to strengthen their local radiological emergency preparedness program to help protect against, mitigate the effects of, respond to and recover from incidents involving commercial nuclear power plants.

National Qualification System REP Evaluator Position Task Book

In 2021, FEMA developed a qualification job title and evaluator position task book for a REP Program exercise evaluator; this can be used by FEMA and any authorities having jurisdiction to increase the number of qualified evaluators and formally validate and document personnel qualifications.

This initiative supports the National Preparedness Goal and the 2022–2026 FEMA Strategic Plan, Goal 3: Promote and Sustain a Ready FEMA and a Prepared Nation, through creating a network of qualified personnel to support REP Program exercises. The National Qualification System provides a system to (1) ensure that personnel have the capabilities and qualifications necessary to successfully perform their specific job, (2) ensure personnel interoperability across the nation, and (3) improve the efficiency of mutual aid support.

THD Strategic Plan Support

The purpose of the THD Strategic Plan: Goal 2, Build Organizational Resilience, is to develop, retain and apply subject matter expertise and adopt emerging technologies to make FEMA systems, processes and operations more efficient and effective.

The Operations Section led the THD Strategic Plan: Goal 2 Team in conducting an analysis of FEMA capabilities, which the REPP Branch and the [Chemical Stockpile Emergency Preparedness Program \(CSEPP\) Branch](#) spearhead to meet the FEMA THD mission. The team assessed the responsibilities and competencies within the REPP Branch and CSEPP Branch and aligned those individual responsibilities and competencies with appropriate [FEMA Cadres](#). The team then consolidated the input to determine the FEMA Cadres that were most applicable to the mission and duties of the branches under FEMA THD. The assessment focused on training, professional development and other experiences that would enhance FEMA workforce in support of emergency operational contingencies, all of which are directed at building community resilience.

The Operations Section continued to contribute to the THD Strategic Plan by providing input for the THD Ambassador Program Workshops regarding the purpose, targeted audiences and activities. The THD Ambassador Program is a new initiative to create a pool of partnership builders from across the organization. The goal is to equip Ambassadors with the knowledge, skills and abilities to share the value of both REPP and CSEPP with internal and external partners.

Geospatial Information System Initiative

In 2020, the REP Program launched the GIS Initiative with the PIM application. The REP Program identified a need to provide a national-level GIS platform to support communities surrounding the 56 active commercial nuclear power facilities across the United States. To achieve this, the PIM was created as a public-facing interactive mapping application using ArcGIS Online. This application informs users and connects them to SLTT governments and federal radiological preparedness resources. It also provides data about hazards and demographics and includes additional information intended for emergency managers in offsite response organizations. The PIM application consolidates information into one common operating picture presented as a preparedness tool that can help strengthen our community planning and decisions in emergency management. The PIM leverages existing FEMA software licenses and publicly available data sources to provide this tool to REP Program stakeholders at minimal cost.

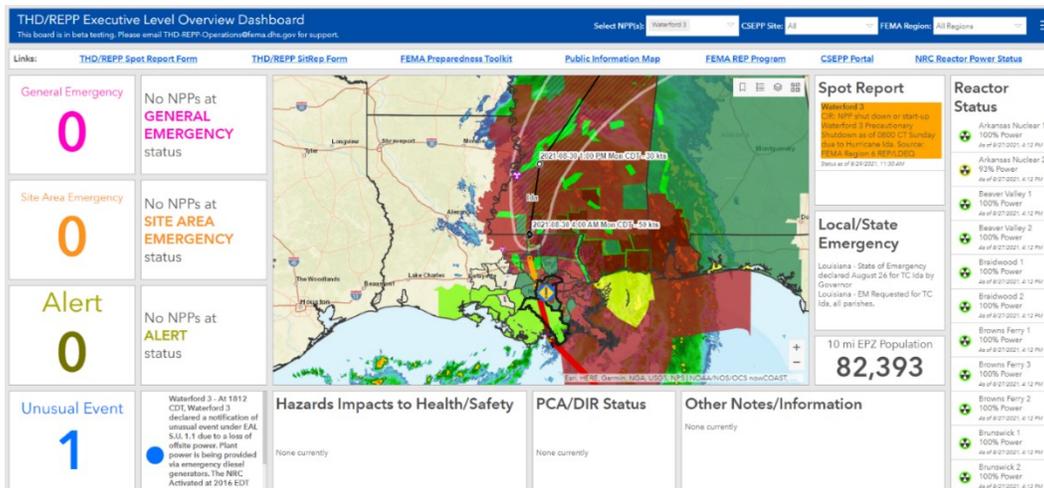


Figure 3. FEMA/REP Program Executive-Level Overview Dashboard (Beta), Following Landfall of Hurricane Ida in August 2021

In 2021, the REP Program created its first geospatial analyst position through an ongoing partnership with FEMA Office of Response and Recovery, Geospatial Office. The geospatial analyst provides in-house subject matter expertise to the REP Program and geospatial programming and analysis for regional radiological emergency preparedness programs and offsite response organizations. The geospatial analyst has created situational awareness tools such as the executive-level dashboard, provided maintenance updates to the PIM and technical support to offsite response organizations and internal users, produced population analysis in REP communities based on the 2020 U.S. Census, and supported virtual PCA and DIR in FEMA Region 6 after Hurricane Ida by creating mapping products.

Data Analytics Initiative

Data Analytics Project Background

Data analytics is the process of presenting and answering a question that leads to tangible, actionable insights using data. This process involves collecting, inspecting, cleaning, standardizing, normalizing and transforming data into an easily consumable format so that it leads to the discovery of useful information that supports decision-making.

The data analytics project began as an initiative to support implementation of the new 2019 RPM guidance – specifically to align the REP Program with common preparedness terminology, such as core capabilities and capability targets. Using a collection of tailored algorithms, the team extracted data that reflects and supports the larger [National Preparedness Directorate](#) mission, regardless of what a particular region is using as the basis for their assessment. Further, this approach allowed for a data-driven quantification of the REP Program’s activities. The process, employed during the initial phase, demonstrated just one way data could be identified, extracted and visualized for a single

aspect of the REP Program’s reporting on preparedness. These efforts culminated into two primary dashboard products: the Senior Leadership Dashboard and the Regional Overview Dashboard.

Primary Dashboards

The Senior Leadership Dashboard was developed for headquarters staff to have a program-wide view of a region’s activities. This dashboard is specifically intended to provide a tool that aggregates large data sets, primarily for reporting purposes. For example, the dashboard was used to generate a findings report for a specific demonstration criterion in response to a quick-turn data request. The final product was delivered in December 2020 and was briefed to the current THD director and deputy director the following year to obtain their feedback and update the tool based on their specific direction.

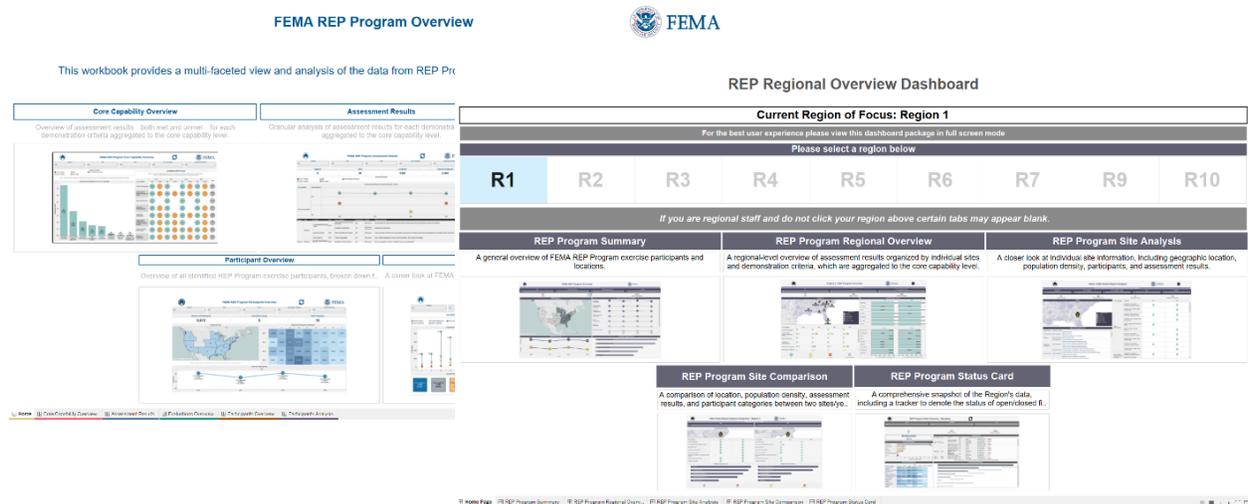


Figure 4. Senior Leadership and Regional Overview Dashboards

The Regional Overview Dashboard was designed to be used by individual FEMA regions, namely FEMA RAC Chairs and site specialists, who would benefit from having their information available in one place. The dynamic visualizations in this tool are tailored to help regions use their data to inform daily operations, make decisions, gather information and complete reporting-related tasks. The first iteration of the Regional Overview Dashboard was delivered in February 2021.

To establish a historical baseline, Figures 5–7 show high-level data captured from 2016–2019 after-action reports (AARs). Figure 5 looks at the total number of sites, exercise participants, exercise locations, and average number of participants and locations per exercise. Figure 6 shows the participant categories by year. Participant categories were not provided in the AARs, and categories were individually assigned based on the participating agency’s most common function during the exercise. Lastly, in Figure 7, location categories are provided by year. Like the participant categories, this was not information provided in the AARs. Categories were individually assigned based on the role of the location during the exercise. For both participant and location categories, there may be slight differences in the future as the data set continues to evolve.

FEMA REGION	PARTICIPANTS	LOCATIONS	Sites
01	633 Total participating agencies 127 Average participants per exercise	229 Total locations 46 Average locations per exercise	3 Sites
02	683 Total participating agencies 76 Average participants per exercise	422 Total locations 47 Average locations per exercise	6 Sites
03	1,955 Total participating agencies 122 Average participants per exercise	864 Total locations 54 Average locations per exercise	8 Sites
04	1,569 Total participating agencies 49 Average participants per exercise	516 Total locations 16 Average locations per exercise	16 Sites
05	1,396 Total participating agencies 47 Average participants per exercise	953 Total locations 32 Average locations per exercise	15 Sites
06	382 Total participating agencies 32 Average participants per exercise	133 Total locations 11 Average locations per exercise	6 Sites
07	503 Total participating agencies 50 Average participants per exercise	157 Total locations 16 Average locations per exercise	5 Sites
09	99 Total participating agencies 33 Average participants per exercise	76 Total locations 25 Average locations per exercise	2 Sites
10	158 Total participating agencies 79 Average participants per exercise	52 Total locations 26 Average locations per exercise	1 Site
Summary	7,378 Total participating agencies 62 Average participants per exercise	3,402 Total locations 29 Average locations per exercise	62 Sites

Figure 5. Exercise Participants and Locations

Participant Category	Year				Grand Total
	2016	2017	2018	2019	
Communications	158	107	188	126	579
Defense	45	32	40	35	152
Emergency Management	298	216	316	228	1,058
Environmental	72	57	66	55	250
Fire	173	130	209	155	667
Food and Agriculture	46	43	48	40	177
Health and Public Safety	277	269	303	272	1,121
Law Enforcement	245	193	243	210	891
Parks and Recreation	15	6	12	8	41
Public Works	190	112	167	114	583
Schools	162	124	136	106	528
Social Services	115	89	134	101	439
State/Local Government	217	162	191	148	718
University	15	7	8	11	41
Utilities	61	50	58	45	214
Grand Total	2,089	1,597	2,119	1,654	7,459

Figure 6. Exercise Participant Category Breakdown

Location Category	Year				Grand Total
	2016	2017	2018	2019	
Alert and Notification	33	35	36	30	134
Backup Route Alerting	17	18	24	14	73
Dose Assessment	25	23	28	19	95
Emergency Operations Center	273	215	256	173	917
Emergency Operations Facility	18	17	17	18	70
Field Monitoring Team	77	48	86	57	268
Initial Warning/Notification Point and Communications	33	25	35	26	119
Joint Information Center	57	40	61	38	196
Medical	31	44	37	45	157
Others	9	10	8	0	27
Populations with Access/Functional Needs	95	3	63	7	168
Radiological Monitoring/Decontamination	132	117	130	86	465
Schools	136	94	133	70	433
Transportation and Traffic/Access Control	74	68	82	79	303
Grand Total	1,010	757	996	662	3,425

Figure 7. Exercise Location Category Breakdown

Over the course of 2021, the Data Analytics Team provided demonstrations of the Regional Overview Dashboard to all nine FEMA regions that participate in the FEMA REP Program. The demonstrations provided an overview of the Regional Overview Dashboard product, description of the data, challenges with data standardization, and the vision for the data analytics project moving forward. Each region’s site specialists and leadership were given access to the dashboard to gain firsthand experience using the dashboard products and provide feedback on how it may be improved to better suit their needs. The feedback and suggestions provided by the regions were crucial for establishing a collaborative relationship, which was important for obtaining feedback and suggestions from the regions. Suggestions were reviewed, addressed and implemented in the second iteration of the Regional Overview Dashboard, which was released in January 2022. The second iteration contains several new features based on feedback received from the regions as well as an updated data set that includes AARs received from exercises conducted from 2020 to 2021. In the future, updates to the data set will occur on a more rolling basis. Updates will be rolled out to the regions via learning sessions scheduled throughout 2022. These will be shortened versions of the dashboard demonstrations focusing primarily on the latest updates.

Specialized Dashboards

Specialized dashboards were created and updated throughout 2021 that target specific data sets within the REP Program. The Training Dashboard was created to help the REPP Branch Training Section Team leverage their data set by providing a dynamic visualization of information that can help users support day-to-day tracking of training activities, analyze and identify trends that draw valuable insights, and inform future training deliveries. The first version of the Training Dashboard was delivered in March 2021, and a second iteration included a large amount of historical data dating back to 2009. The User Fee/Billable Hours Dashboard tracks the amount of time REP staff spend conducting exercises and the time dedicated to supporting FEMA response operations. The first iteration of the User Fee/Billable Hours Dashboard was delivered in June 2021 and is updated on a rolling basis to keep the information as current as possible.

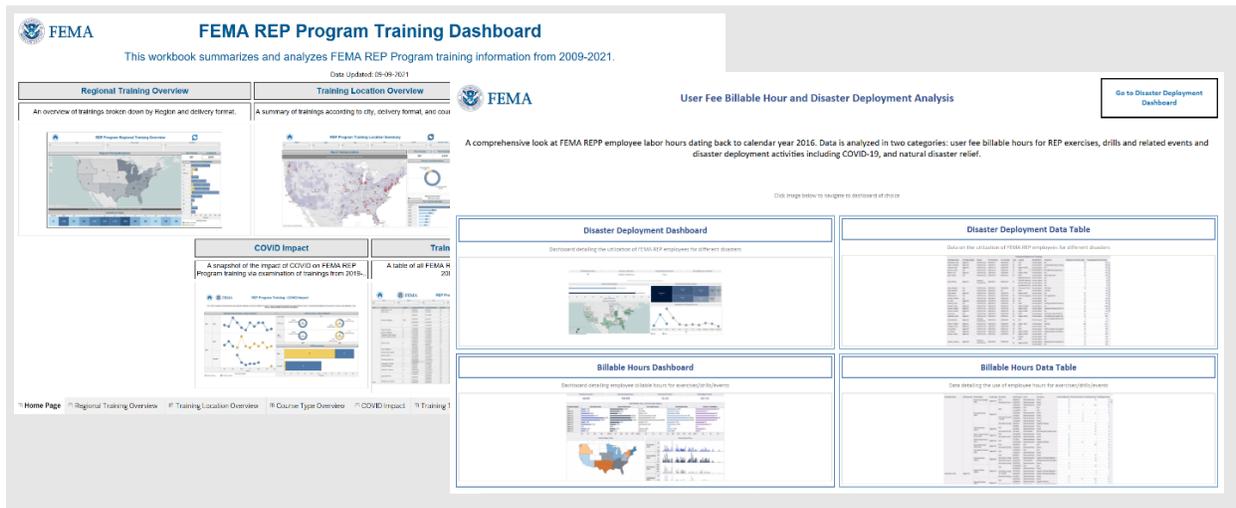


Figure 8. Training and User Fee/Billable Hours and Disaster Deployment Dashboards

Advancing Equity Across Federally Recognized Tribal Governments

The purpose of the equity project is to capture and track how the REP Program is currently being implemented when inclusion of or consultation with tribal governments may be required. The REP Program is also establishing a process to train FEMA staff on how to better engage tribal communities. The following are focus areas of the project:

- Capture and track how the REP Program is currently being implemented.
- Create a model based on implementation of current regulations, policies and guidance.
- Identify gaps, develop framework, and update regulations, policies, and/or guidance to ensure equity based on analysis.

Desired Outcomes:

- Support implementation of the 2022–2026 FEMA Strategic Plan, Goal 1: Instill Equity as a Foundation of Emergency Management.
- Increase internal and external awareness of tribal nations within the REP Program.

3.2. Planning Section

The REPP Branch Planning Section is a multifunctional group that performs a variety of routine and fluid tasks. The Planning Section acts first as the liaison between FEMA THD and Technological Hazards Branches across FEMA regions. The Planning Section prepares correspondence between HQ, the regions and NRC and ensures that adequate offsite radiological emergency preparedness plans and procedures exist and are implementable. This provides reasonable assurance that the health and safety of citizens living near existing commercial nuclear power plants is protected. The Planning Section also collaborates with the other branches and sections of FEMA THD and its regional counterparts.

3.2.1. PURPOSE

The Planning Section and its five regional liaisons act as regional extensions of the FEMA THD; and prepare correspondence between Technological Hazards Branches and the FEMA THD and between NRC and the FEMA THD.

3.2.2. RESPONSIBILITIES

Regional Liaisons

The regional liaisons provide exercise support through the Planning Section and have responsibilities vital to the proper documentation of findings of reasonable assurance. In addition to maintaining specific documentation such as ALC and the exercise AARs, the regional liaisons participate in exercises, drills and out-of-sequence events as senior evaluators and subject matter experts.

Regional liaisons meet with regional staff or other agency visitors to prepare and deliver briefings in response to radiological events, exercises and Freedom of Information Act requests, as well as coordinate FEMA THD resources needed by FEMA regions. Regional liaisons also assist RAC Chairs with writing exercise findings; engage in research and discussion; and provide subject matter expertise to site specialists through the required correspondence, routing and responses regarding Level 1 Findings. Regional liaisons assist the NRC in adjudicating allegations by following up with regions on any pending questions or concerns regarding reasonable assurance efforts with offsite response organizations.

Health Physicists

The FEMA THD health physicists work in the Planning, Operations and Training Sections. They collaborate and support functions that are specific to their technical positions as health physicists. Health physicists provide subject matter expertise for sustained operations and emerging initiatives within the REP Program, across the federal family and beyond. The primary duties of health physicists include:

- Develop curricula for and teach REP technical courses and content, including Radiological Accident Assessment Concepts.
- Provide technical support for SAVs and act as technical evaluators and team leads at exercises and drills, as well as perform technical scenario reviews.
- Act as subject matter experts for the PCA and DIR process.
- Serve on interagency working groups and contribute to other collaborative efforts.
- Provide policy input and interpretation in technical areas related to radiological topics.

In 2021, health physicists supported the implementation of the 2019 RPM, assisted with adopting the 2017 EPA Protective Action Guides, provided virtual and in-person instruction for Radiological Accident Assessment Concepts course and refresher courses, and served on the Nuclear/Radiological Incident Task Force. Health physicists also planned and participated in the FEMA REP-21 and 22 writing process; supported the Advisory Team for Environment, Food and Health (A-Team); served on multiple Federal Radiological Monitoring and Assessment Center working groups; and served on the federal interagency Radiological Source Protection and Security Task Force.

3.2.3. HIGHLIGHTS AND ACTIVITIES

REP Recovery Initiative

The purpose of the REP Recovery Initiative is to strengthen recovery capabilities within the REP community. Since the origin of the Initiative in 2017, 20 seminars and workshops have been conducted, with three coordinated in 2021. Two of the 2021 seminars were conducted on virtual platforms. The REP Recovery Initiative has accomplished the following objectives:

- Enable FEMA to determine reasonable assurance for recovery-related core capabilities and targets.
- Further integrate recovery core capabilities into the REP Program and its communities.
- Complete and close out improvement items identified in the Southern Exposure 2015 Exercise Improvement Plan Matrix.
- Establish a framework and foundation to drive regional delivery for future REP Recovery Initiative activities in support of state-identified recovery gaps and core capabilities and REP Program assessment requirements.

Following the start of the COVID-19 public health emergency, the REP Program adapted to continue the efforts of its Recovery Initiative even with the temporary cancellation of in-person events. Five series of presentations have been given, including two series of nine presentations in 2021. These sessions averaged approximately 147 individuals representing 53 federal agencies. Approximately 487 individuals from 132 organizations represented SLTT and private sector partners, attending at least one session.

3.3. Training Section

FEMA is committed to investing the resources to train and motivate its existing workforce, while also working to attract, hire and develop its future workforce as the agency strives for continued mission success. The REPP Branch has an established professional development path to assist staff, offsite response organizations and REP partners in their emergency preparedness planning. The REP Program requires a working knowledge in a variety of specialized fields, including specialized planning and protective action decision-making, health physics, accident assessment, radiological monitoring and measurement, and communications. As a result, trends have shown that it often requires several years to attain programmatic proficiency. No other program, with the exception of a Naval Nuclear Propulsion Program’s Naval Reactors Program, deals with the planning requirements and hazards specific to nuclear power generation.

The REPP Branch Training Section consists of seven facilitators who administered 47 courses in 2021. Figure 9 is a snapshot of training accomplishments in 2021.



Figure 9. Snapshot of 2021 Trainings

3.3.1. PURPOSE

The purpose of the REPP Branch Training Section is to provide radiological emergency response training to those who may be called upon to assist in an emergency (44 CFR § 350.5). The Training Section, in partnership with the Center for Domestic Preparedness, provides courses to keep offsite response organizations, REP Program staff and REP partners apprised of the latest information, techniques and tools to respond safely to hazards.

The Training Section targets federal and SLTT governments as well as non-governmental organizations (NGOs) and utility personnel responsible for offsite nuclear power plant emergency response or planning.

3.3.2. RESPONSIBILITIES

The REPP Branch Training Section offers in-person instructor-led training, virtual instructor-led training, hybrid training (a combination of virtual and in-person training) and web-based individual training courses. The Training Section conducts training needs assessments to determine the best path for course development and improvements. The knowledge, skills and resources discussed and practiced throughout the training program support a wide range of transferable emergency response capabilities.

3.3.3. HIGHLIGHTS AND ACTIVITIES

FEMA REP Program Training Dashboard

The FEMA REP Program Training Dashboard was created in 2020 to synthesize the full set of data collected by the REPP Branch Training Section. This dashboard provides dynamic visualizations of training data that can help shape strategic decision-making, which in turn benefits FEMA staff and offsite response organizations. The dashboard summarizes and analyzes REP Program training information from 2009–2021.

REP Program Training Materials

Since 2019, the Training Section has focused on revising REP Program training materials to align with the current NUREG-0654/FEMA-REP-1, Rev. 2 and the 2019 RPM to align with the National Preparedness Directorate. In 2021, FEMA offered limited in-person training due to COVID-19. The Training Section adjusted to meet the needs of stakeholders by providing virtual instructor-led training instead to maintain the preparedness and response capabilities of offsite response organizations.

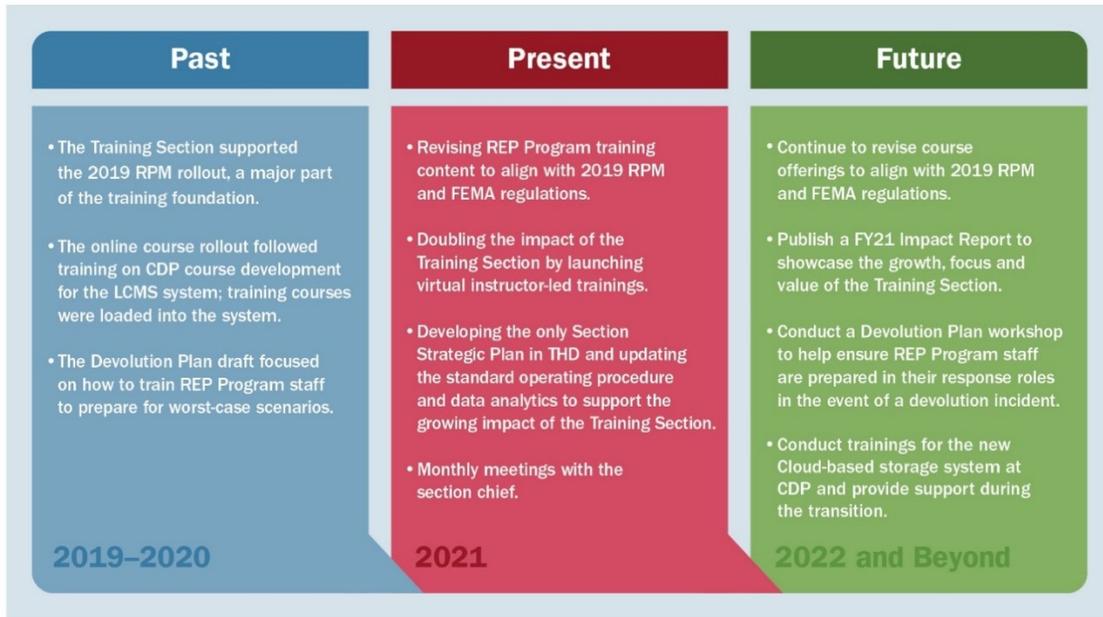


Figure 10. Trainings: Past, Present and Future

Annual Impact Report and Training Strategic Plan

In 2022, the REPP Branch Training Section plans to develop an Annual Impact Report to highlight progress toward the Training Section’s strategic goals and objectives. The Annual Impact Report is derived from the Training Strategic Plan, which outlines the growth, focus and impact that training has on the greater mission to protect public safety against the threat of nuclear incidents and provides an opportunity for more cross-functional work within the REP Program. The Annual Impact Report includes data-driven outcomes from the data analytics dashboard and other defined measures of success.

The Training Strategic Plan directly aligns with FEMA strategic goals of and leaves room for annual reflection on leadership priorities. The Training Section’s strategic goals and objectives are to (1) build a culture of engagement, (2) support opportunities for growth and development, and (3) deliver high-quality radiological emergency response training.

4. Other Branches and Committees

4.1. Policy and Doctrine Branch

In 2021, the Policy and Doctrine Branch continued its focus on supporting the successful execution of the REP Program during the continued COVID-19 public health emergency. The Policy and Doctrine Branch also focused on facilitating the implementation of updated 2019 policies and guidance, such as NUREG-0654/FEMA-REP-1, Rev. 2 and the 2019 RPM. For example, in January 2021, the Policy and Doctrine Branch, in coordination with the REPP Branch, conducted a webinar, which was attended by more than 600 participants both internal and external to FEMA.

The Policy and Doctrine Branch, REP Program subject matter experts and RAC Chairs highlighted lessons learned and shared best practices for conducting required biennial exercises during a public health emergency. Additionally, the Policy and Doctrine Branch facilitated internal outreach and implementation of programmatic policy and guidance — namely the 2019 RPM and NUREG-0654/FEMA-REP-1, Rev. 2 — by hosting internal REP learning sessions and the regional policy workshop series that was used to level-set staff knowledge.

4.1.1. PURPOSE

The Policy and Doctrine Branch facilitates the execution of FEMA Mission and Strategic Goals and Objectives by developing and supporting the implementation of REP policy and guidance while ensuring alignment with FEMA priorities and resources.

4.1.2. RESPONSIBILITIES

The Policy and Doctrine Branch develops and maintains regulation, policy and guidance for the REP Program. The Policy and Doctrine Branch also reviews and approves alert and notification system design reports. Additionally, the Policy and Doctrine Branch serves as the secretariat of the FRPCC. The FRPCC is co-chaired by the THD director and the deputy assistant administrator for response. Finally, the Policy and Doctrine Branch leads FEMA radiological and nuclear international partner engagement.

4.1.3. HIGHLIGHTS AND ACTIVITIES

The Policy and Doctrine Branch consists of 13 staff members who live FEMA values of compassion, fairness, integrity and respect and routinely produce excellent results in support of FEMA's mission of "helping people before, during and after disasters."

In 2021, FEMA continued efforts to revitalize the FRPCC; identify and communicate the agency's efforts to advance equity in NRC rulemaking efforts; align efforts with NRC; further the implementation of FEMA THD Strategic Plan; and represent FEMA radiological/nuclear preparedness efforts in strategic international engagements with the International Atomic Energy Agency (IAEA) and the governments of Canada, Japan and the Republic of Korea.

Engineering and Technology Section

The trend to support the integration of IPAWS into state and local REP Program emergency plans continued throughout 2021. The Engineering and Technology Section chief led the team in the review, approval and NRC acceptance of four nuclear power plant proposals to transition legacy alert and notification systems to IPAWS. The Engineering and Technology Section also provided technical assistance to REP Program communities developing proposals to adopt IPAWS. The adoption of IPAWS allows state, local and industry partners to leverage the system's innovative technology to rapidly reach people throughout the EPZ and inform them of necessary actions to remain safe. In January 2021, FEMA hosted an alert and notification system (ANS) workshop focused on implementation of IPAWS in REP Program communities. More than 260 stakeholders from across the federal, state and local governments and the private sector attended the workshop. Based on feedback from attendees, the workshop provided critical information that will help communities as they consider adopting IPAWS. The Engineering and Technology Section conducted research to identify the best methods to validate siren and IPAWS capabilities and improve guidance provided to stakeholders to support their ANS transition efforts. FEMA anticipates continued adoption of IPAWS in REP Program communities throughout 2022.

Policy Section

The scope and magnitude of Policy Section initiatives over the last several years has been and continues to be, truly unprecedented. In addition to working carefully with NRC to develop emergency preparedness guidelines for the next generation of nuclear reactors and for the decommissioning of active nuclear power plants, FEMA is conducting ongoing updates of the RPM guidance that informs the implementation of the REP Program. In 2021, the Policy Section demonstrated an exceptional level of effort and commitment to meet extraordinary challenges during the COVID-19 public health emergency. The projects completed by the team promote the FEMA Strategic Plan and further align REP Program regulatory and guidance documents with the National Preparedness System.

The revision and publication of the Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants (NUREG-0654/FEMA-REP 1, Rev. 2) in 2019 reflected the first major update since its initial release in 1980. The revision was a collaborative undertaking by FEMA and NRC. NUREG-0654/FEMA-REP 1, Rev. 2 refreshed radiological preparedness guidance and more closely aligned it with the time-tested REP preparedness principles and the contemporary National Preparedness System. The changes made to the RPM provide continuous enhanced guidance to FEMA staff and stakeholders.

Policy Workshop Series

Because implementation efforts were delayed during the ongoing COVID-19 public health emergency, implementation of the 2019 RPM did not begin until 2021, when FEMA regions and offsite response organizations restarted efforts to transition from the 2016 RPM to the 2019 RPM. The Regional Policy Workshop series was intended to reintroduce the 2019 RPM and its associated guidance, templates and checklists. Policy Section staff and contract support staff coordinated development, facilitation and delivery of these workshops, including subsequent guidance,

communications and change management plans. The Regional Policy Workshop series targeted FEMA staff and was conducted using Microsoft Teams and Mural, a digital whiteboard used to collaborate virtually in real time. Based on availability, FEMA Region 6 was selected for the pilot workshop. The Policy Section used feedback received during the pilot to refine workshop materials. The workshop will be available for delivery by FEMA regional staff to offsite response organizations in the future.

Mural, the digital whiteboard used for each Regional Policy Workshop, was archived and provided to the REPP Branch Training Section as a tool to identify best practices, lessons learned and any gaps in training.

Figure 11 is a snapshot of attendance at the Regional Policy Workshop series conducted in 2021.

FEMA Region	Date	Total Participants
Region 06 (pilot)	June 2–3	47
Region 04	September 28–29	65
Region 09	October 6–7	39
Region 03	October 13–14	37
Region 01	November 3–4	31
Region 05	November 9–10	53
Region 02	December 13–14	33

Figure 11. Policy Workshop Series Attendance

Given the positive reception from FEMA staff, the Policy Section, in collaboration with the Training Section, will be conducting a series of Regional Collaboration Sessions in spring 2022. These sessions will be open to FEMA staff and will focus on specific aspects of the 2019 guidance (e.g., work plan development, the biennial preparedness report, extent-of-play agreements and plan reviews). These sessions will include open discussions about potential best practices and lessons learned.

Regional Policy Advisors

The Policy Section assembled a team of Regional Policy Advisors to serve as representatives for their respective FEMA regions and participate in the development and review of policy and guidance materials. This cadre of regional subject matter experts is called upon routinely to advise the Policy Section. The intention is to ensure that FEMA regional interests and concerns have a direct conduit to the Policy Section. Other projects include supporting the revision of the next iteration of the RPM, scheduled to be released in December 2023; review and update of current guidance documents and templates associated with the 2019 RPM; and outreach activities.

Interagency and International Integration Section

The Interagency and International Integration Section supports the delivery of the REP Program through building relationships across the federal government and key international partners. The team focuses on areas of common interest in the nuclear and radiological preparedness sectors to share best practices and lessons learned and to identify and address ongoing or emergent issues. The Interagency and International Integration Section does this through well-established collaborative groups that include the FRPCC, an interagency committee established in 44 CFR § 351; the Emergency Management Consultative Group, a U.S.–Canada bilateral working group; and the Emergency Management Working Group, a U.S.–Japan bilateral working group. It also works to build independent partnerships with other federal, state, local and international stakeholders to collaborate on issues related to radiological preparedness.

Federal Radiological Preparedness Coordinating Committee

As described in 44 CFR § 351, the FRPCC, co-chaired by FEMA THD and the FEMA Response Directorate, assists FEMA and other federal bodies (e.g., National Security Council Staff, White House Office of Science and Technology Policy) on policy development and direction concerning federal assistance to SLTT governments in their nuclear/radiological emergency planning and preparedness activities.

Despite the ongoing COVID-19 public health emergency, the FRPCC accomplished several milestones related to its strategic goals, including engaging interagency stakeholders, maximizing efficiencies and becoming more effective in executing business goals, integrating with the Conference of Radiation Control Program Directors (state and local partners), and examining the impacts of the COVID-19 public health emergency that could apply to nuclear/radiological preparedness. In 2021, the FRPCC focused on several key areas during its quarterly meetings:

- FRPCC membership input for establishing priorities that included closing the nuclear/radiological technical gaps, applying lessons learned from the COVID-19 public health emergency to the nuclear/radiological space, revising and improving messaging plans and information repositories, and strengthening the data-driven decision-making process.
- Collaboration between federal and SLTT governments to address nuclear/radiological capability gaps.



Figure 12. FRPCC Members

- National, interagency nuclear/radiological exercises scheduled in calendar years 2022–2025 and the FRPCC’s contributions and participation in various roles and associated responsibilities.
- The roles and staffing challenges for the Nuclear Radiological Incident Task Force and the A-Team.
- The role of FEMA’s National Preparedness Assessment Division in using data to drive decisions and how these may apply to the interagency nuclear/radiological arena.
- Discussions to clarify the 2022 agenda; the strategic purpose and function of FRPCC; and the key, critical areas on which to focus efforts.

Looking forward to 2022 and beyond, the FRPCC will refine its strategic purpose and serve as a key national integrator in nuclear/radiological preparedness. Some goals include playing a substantial role in the revision of the Nuclear/Radiological Incident Annex, revising the FRPCC charter, and continuing to build and strengthen interagency and state and local partnerships.

Communications With International Partners

Government of Japan

In collaboration with interagency partners, FEMA THD continued to support several Emergency Management Working Group technical meetings with the Government of Japan. These meetings, hosted by DOE’s National Nuclear Security Administration, allowed for discussion on many aspects of radiological preparedness. Some of these topics included comparing the two countries’ capacity-building activities and the nuclear emergency response during the global COVID-19 public health emergency and looking toward a post-pandemic world. These engagements led to a better understanding of common challenges in nuclear/radiological preparedness as well as highlighted some key differences in each nation’s approach to radiological preparedness and response. Some of the best practices discussed were in the areas of conducting exercises, training and overall operations in the COVID-19 environment and human resource management.

Government of the Republic of Korea

FEMA THD participated in planning sessions for the 2022 Winter Tiger III exercise, a U.S. Department of Defense bilateral event to strengthen domestic nuclear/radiological incident response authorities, plans, procedures, resources and capabilities in both the United States and the Republic of Korea. Since December 2017, the United States and the Republic of Korea have been developing a set of activities to improve regional nuclear security, including the ability to prevent, detect, seize, secure and investigate incidents involving nuclear and other nuclear/radiological materials under the auspices of the Nuclear Security Working Group of the High-Level Bilateral Commission.

Government of Canada

FEMA THD has been actively building and strengthening its relationship with Canada by initiating meetings with its counterparts in Health Canada to share insights and experience in radiological preparedness. In 2021, both nations shared thoughts on small modular reactors and the upcoming exercises, training and participation in each other's events. This partnership will continue to grow in 2022 with planned cross-border training and exercises as well as data utilization to support missions.

International Atomic Energy Agency

In October 2021, FEMA's THD attended the IAEA Technical Meeting on Next Generation Reactors and Emergency Preparedness and Response held in Vienna, Austria. FEMA THD Director David Gudinas presented to the member states participating in the Enhancing Resilience Through Radiological Emergency Preparedness session, while the FEMA Office of National Exercises and Technological Hazards Director Erin Hoffman moderated a working group session. FEMA's participation was closely collaborated with the NRC. The IAEA is the world's central international forum for scientific and technical cooperation in the nuclear field. The IAEA works for the safe, secure and peaceful uses of nuclear science and technology, which contributes to international peace and security and the [United Nations Sustainable Development Goals](#).

4.2. Business Operations Branch

4.2.1. PURPOSE

The Business Operations Branch spent 2021 focused on supporting the successful financial execution of the Office of National Exercises and Technological Hazards, REP Program and CSEPP during the continued COVID-19 public health emergency. The Business Operations Branch achieved its full complement of personnel staffing by maintaining a 100% fill rate for all assigned positions in 2021 with 11 highly motivated and competent emergency managers, budget analysts and program specialists. The Business Operations Branch maintains FEMA's core values of compassion, fairness, integrity and respect, and its staff routinely produce excellent results in support of FEMA's mission of "helping people before, during and after disasters."

4.2.2. RESPONSIBILITIES

The Business Operations Branch strategically and effectively administers financial management, budget formulation and execution, invoice payments, human capital process, procurement activities, travel, property and inventory management, space management, records management, safety and security oversight, and business administration to both the REP Program and CSEPP.

4.2.3. HIGHLIGHTS AND ACTIVITIES

Budget and Finance Section

The Budget and Finance Section is responsible for maintaining proper stewardship of REP Program and CSEPP funding by managing the financial resources in an efficient and cost-effective manner and ensuring compliance with all laws and regulations. The Budget and Finance Section coordinates the development of detailed operational spending plans and reports on current-year spending, while ensuring available levels of appropriated and anticipated funds by tracking and collecting data on actual spending across the program.

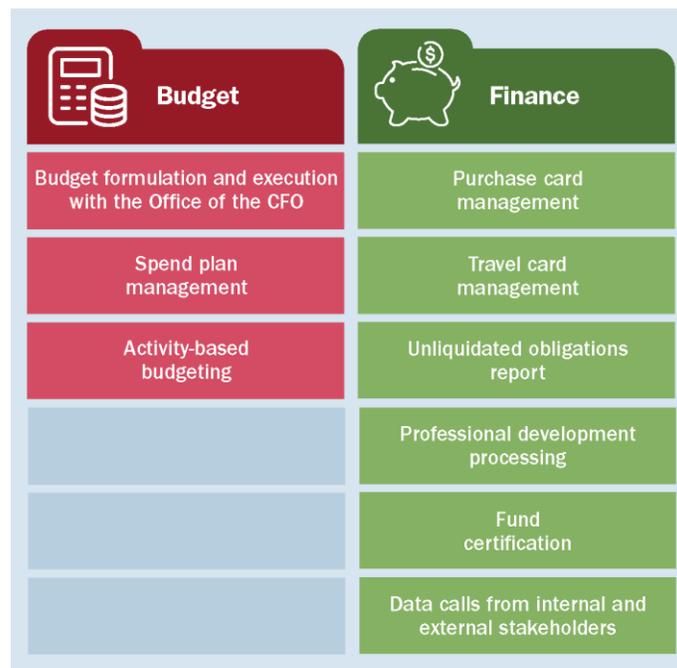


Figure 13. Business and Finance Section Primary Duties

In 2021, the Budget and Finance Section conducted a gap analysis on the Spend Plan and user fee processes, which entailed conducting walk-throughs to identify and document current processes and comparing existing processes to federal, DHS and FEMA requirements, as well as leading practices. As a result of this analysis, the Budget and Finance Section updated various policies and standard operating procedures to align with current practices and increase compliance with requirements.

Additionally, the Budget and Finance Section developed an implementation plan to improve the User Fee Model by establishing a more transparent and accurate way to allocate costs in a documented user fee formula, which will result in increased granularity and transparency to stakeholders.

Procurement and Security Section

The Procurement and Security Section is responsible for supporting buying activity and maintaining good federal funds stewardship. The Procurement and Security Section supports THD through successful and effective procurement planning, coordination and execution. The Procurement and Security Section supports acquisition efforts for all FEMA regions for the REP Program. In addition, it meets all THD security, records management, Continuity of Operations and property management needs. In doing so, the Procurement and Security Section provides the appropriate information to ensure that all support for THD programs is conducted with integrity and fairness and in the best interest of the government.



Figure 14. Procurement and Security Section’s Primary Duties

In 2021, the Procurement and Security Section successfully managed all contracts and agreements within budget and ensured that all deliverables and milestones were successfully met. The Procurement and Security Section also maintained readiness of FEMA’s THD Emergency Relocation Group (ERG) Team. The ERG Team is composed of pre-designated staff who will move to an alternate facility or telework, as per their directed work location, to continue essential functions if normal work locations are threatened or have been incapacitated by an incident. The Procurement and Security Section maintains the oversight for the THD records schedule and Freedom of Information Act requests. It also ensures that REPP and CSEPP are compliant with all current FEMA/DHS security regulations. The Procurement and Security Section conducts property inventory and orders new equipment that is instrumental in maintaining the nearly 100% telework footprint experienced during the ongoing COVID-19 public health emergency.

4.3. External and Internal Partnerships

4.3.1. REGIONAL ASSISTANCE COMMITTEE ADVISORY COUNCIL

The Regional Assistance Committee Advisory Council (RAC AC) meetings are designed for sharing REP- and non-REP Program-related information among FEMA regional offices and FEMA HQ. RAC AC meetings are held quarterly or more frequently, if necessary. FEMA THD leadership welcomes all RAC Chairs and federal preparedness coordinators to attend.

4.3.2. FEMA/NRC STEERING COMMITTEE MEETINGS

The Steering Committee meetings are held to review the status of joint REP activities as defined in the memorandum of understanding between FEMA THD and NRC and establishes the appropriate prioritization of activities and designated resources. The meetings also establish specifically defined working groups consisting of FEMA and NRC staff to coordinate development and resolution of significant issues impacting both FEMA and NRC programs and processes for determination of adequacy of emergency preparedness plans and preparedness within their respective areas of responsibility. Finally, the Steering Committee meetings are intended to brief the NRC Commission and senior staff, FEMA senior management, and applicable government agency groups and committees on significant issues of interest or joint activities impacting REP activities and responsibilities.

4.3.3. FEMA/NRC IN-PROGRESS REVIEW

The 2021 FEMA/NRC In-Progress Review (IPR) was conducted virtually on March 16–17, 2021. The IPR is an annual event where management and subject matter experts from NRC (HQ and NRC regions) and FEMA (FEMA's THD and FEMA regions) gather to discuss topics of mutual interest and cross-cutting initiatives related to radiological emergency preparedness. The IPR is structured to be interactive with presentations and discussions throughout. The major outcome of the 2021 IPR was an enhanced alignment and understanding between the two agencies on the major REP Program strategic objectives for 2021 and how each organization closely consulted, coordinated and collaborated to successfully meet those objectives.

5. National Snapshot

The REP Program communities lead the nation in building a culture of preparedness while safeguarding the health and well-being of the public in communities near commercial nuclear power plants. REP offsite response organizations have often stated that the REP Program has helped them be better prepared for all types of disasters.



Figure 15. FEMA National Snapshot

REP Program–funded personnel, like all FEMA staff, are often called to serve in support of disaster-related activities. When called to deploy, REP Program staff have their salaries and expenses paid through the Disaster Relief Fund for the duration of their deployment.

6. Regional Profiles

6.1. FEMA Region 1

6.1.1. PRIORITIES

- Ensuring the safety of REP Program staff and offsite partners while accomplishing REP activities during the COVID-19 pandemic remained a priority throughout 2021. Despite the challenges and restrictions of the public health emergency, FEMA’s Region 1 Technological Hazards Branch successfully conducted numerous activities in person during 2021, including the Millstone evaluated exercise, the Rhode Island Ingestion Pathway Drill, the Seabrook dress rehearsal and many more.
- FEMA Region 1 continued to support New England stakeholders, including five states and more than 30 EPZ communities, to provide guidance and training on the transition from the 2016 RPM to the 2019 RPM.

6.1.2. STATE AND PRIVATE SECTOR PARTNERSHIPS

- The April 2021 Rhode Island Ingestion Pathway Workshop exemplified the ability of FEMA to support its stakeholders' radiological emergency preparedness needs while taking into consideration COVID-19 constraints. This two-day virtual event brought together representatives from numerous federal agencies to share information about each agency's role in an ingestion pathway event and to engage in productive discussion with state counterparts.
- FEMA Region 1 Technological Hazards Branch staff worked closely with state partners to engage, collaborate with and evaluate the dozens of schools, child care facilities, adult care and hospital facilities in New England REP communities. This collaborative, individual approach ensured that all these facilities, no matter how large or small, have access to federal radiological preparedness resources.
- FEMA Region 1 consistently communicated and coordinated with REP Program utilities and state, local and private sector agencies through standing quarterly and monthly working group meetings. Additionally, FEMA Region 1 conducted regular check-ins with stakeholders to discuss current operating status and noteworthy events.

6.1.3. HIGHLIGHTS AND EVENTS

- FEMA Region 1 provided support to several national-level REP working groups and initiatives. Those working groups included REP Program Policy, National Qualification System, Preparedness Toolkit (PTK), FEMA-REP-21 and 22, and the 2019 RPM. Some outcomes included the clarification and implementation of policy guidance, finalization of evaluator qualification standards, and strategy for implementation of the 2019 RPM.
- FEMA Region 1 Technological Hazards Branch worked with offsite response organizations to ensure reasonable assurance in a variety of ways during the COVID-19 public health emergency. REP Program staff reviewed and approved alternate assessment requests due to the impact of the COVID-19 pandemic. This process allowed FEMA to ensure reasonable assurance through various alternative methods while providing states opportunities to meet requirements as they simultaneously responded to the COVID-19 emergency.
- During 2021, FEMA Region 1 participated in the PCA/DIR tabletop exercise (TTX) hosted by FEMA THD. This TTX emphasized coordination and communications between FEMA THD and NRC's Office of Nuclear Security and Incident Response, Division of Preparedness and Response prior to the deployment of a DIR Team to a community and the process for conducting a PCA/DIR.
- FEMA Region 1 hosted REP Program training for partners on June 2 (REP DIR Course) and June 14–16 (REP Core Concepts Course).

6.1.4. REASONABLE ASSURANCE ASSESSMENTS

Exercises and Related Activities

- **Millstone Nuclear Power Station**
 - Connecticut Department of Public Health Laboratory Virtual Out-of-Sequence Evaluation held on February 16
 - United Way Connecticut 2-1-1 Virtual Out-of-Sequence Evaluation held on February 16
 - Rhode Island Department of Health Virtual Out-of-Sequence Evaluation held on March 24
 - Rhode Island Ingestion Pathway Seminar held April 6–7
 - Millstone Ingestion Pathway Exercise Dress Rehearsal held May 3–6
 - Millstone Ingestion Pathway Exercise held June 7–11
- **Seabrook Nuclear Power Plant**
 - Seabrook Staff Assistance Visit and Workshop held July 26–27
 - Seabrook Out-of-Sequence Evaluations held on multiple dates
 - Seabrook Dress Rehearsal held on December 8

Drills

- **Millstone Nuclear Power Station**
 - Rhode Island Ingestion Pathway Drill held on April 21
 - Lawrence Memorial Hospital Medical Service Drill held on September 15
 - Middlesex Hospital Medical Service Drill held on December 10
- **Seabrook Nuclear Power Plant**
 - Wentworth Douglas Medical Service Drill held on August 19
 - Lowell General Hospital Medical Service Drill held on August 20

FEMA Region 1 also supported 12 out-of-region exercises and three dress rehearsals.

6.1.5. STAFF HIGHLIGHTS AND KUDOS

- FEMA Region 1 Technological Hazards Branch provided essential support to FEMA's COVID-19 response, deploying staff to the Operations Section of the Regional Response Coordination Center for extended periods. Staff also supported the Strategic Workforce Augmentation Team initiative to provide exceptional customer service to disaster survivors across the country.
- The states and local offsite response organizations in New England achieved commendable success in maintaining their strong radiological emergency preparedness programs, despite the continued challenges of the COVID-19 pandemic. FEMA Region 1 staff communicated with stakeholders constantly throughout 2021, both in person and virtually. Staff engaged five New England states and 33 EPZ communities via SAVs, EPZ quarterly stakeholder meetings, trainings and countless planning meetings to ensure stakeholders were supported and had the tools to achieve their preparedness objectives.
- FEMA Region 1 Technological Hazards Branch staff continued to provide subject matter expertise as exercise evaluators to other regions both virtually and in person throughout 2021.
- FEMA Region 1 staff supported and mentored the next generation of emergency managers by mentoring a Youth Preparedness Council member.
- One FEMA Region 1 staff member served as a FEMA CBRN regional coordinator.

6.2. FEMA Region 2

6.2.1. PRIORITIES

- The COVID-19 public health emergency; the continued safety concern for REP Program staff, state and county emergency workers; and conducting exercises and out-of-sequence demonstrations were top concerns and priorities throughout the year. The FEMA Region 2 Technological Hazards Branch conducted all evaluations virtually or in person.
- FEMA Region 2 participated in a five-hour PCA/DIR TTX hosted by FEMA HQ that emphasized the coordination and communications between FEMA's THD and NRC's Office of Nuclear Security and Incident Response, Division of Preparedness and Response. The exercise captured activities prior to the deployment of a DIR Team to a local community and the process for conducting a PCA/DIR. The exercise used the 2012 Hurricane Sandy as its scenario. FEMA Region 2 staff were able to provide FEMA's THD with actual photos of storm damage to homes in Cumberland and Salem counties along with storm track data from the [HURREVAC](#) to enhance realism.
- FEMA Region 2 established and built an enhanced relationship with the Government of Canada. The Canadian government operates the Darlington and Pickering nuclear power plants on Lake Ontario. Both are in the 50-mile EPZ from FEMA Region 2's Robert E. Ginna, Nine Mile Point and James A. FitzPatrick nuclear power plants. In addition, the Canada Advisory Group was

established to focus on the REP Program and the relationship between Canada and FEMA Regions 1, 2, 5, 8 and 10, highlighting a collaborative space to work toward common goals.

- Beginning in 2022, exercises will be conducted and evaluated using the 2019 RPM. FEMA Region 2 staff will coordinate and review any plan changes submitted by offsite response organizations moving forward.

6.2.2. STATE AND PRIVATE SECTOR PARTNERSHIPS

- FEMA Region 2 experienced great participation from local Radio Amateur Civil Emergency Services and Civil Air Patrol groups in REP plume and ingestion exercises, including out-of-sequence evaluations. These groups are always eager and willing to show evaluators their equipment and capabilities.
- There are hundreds of registered day care centers in the state of New York. FEMA Region 2 provided collaborative training in a group setting followed by an interview using the school questionnaire that FEMA Region 2 developed with the help of the state and risk jurisdictions.
- FEMA Region 2 conducts quarterly conference calls with the Canadian government. The Canadian nuclear power plants of Darlington and Pickering are across Lake Ontario from the Robert E. Ginna nuclear power plant and within each other's overlapping 50-mile ingestion pathway zones. The collaboration between FEMA Region 2 and the Canadian government establishes the basis for cooperative measures to deal effectively with a potential or actual peacetime radiological event involving Canada, the United States or both countries.
- Local volunteer fire departments and ambulance companies play a huge role in New Jersey and New York radiological emergency preparedness planning and response operations. This includes involvement in reception centers, emergency worker decontamination centers, school relocations and evacuations, traffic and access control points, and the treatment of radiation-contaminated individuals. Volunteer organizations provide year-round training and lead proactive roles in preparedness.
- Community Emergency Response Teams also play roles in radiological emergency response operations similar to those of the volunteer organizations listed above. The Community Emergency Response Teams assist operations with reception centers and support the American Red Cross during exercises.

6.2.3. HIGHLIGHTS AND EVENTS

- FEMA Region 2 began tracking the number of COVID-19 cases on both state and county levels in New York and New Jersey in 2020. The initial focus was to understand the impact of the pandemic on communities. The data were provided to the regional staff and FEMA's THD regional liaison for Region 2. FEMA Region 2 informally monitored cases in 2021 to help understand impacts to availability, capabilities, and resources of states and local organizations that were working to get populations vaccinated.

- FEMA Region 2 successfully coordinated and completed exercise evaluations and other planning activities with the state of New York, Entergy Corporation and the counties (Orange, Putnam, Rockland and Westchester) associated with the shutdown and decommissioning of Indian Point Unit 3. Unit 3 permanently shut down on April 30, 2021.
- The Exelon utility hosts quarterly Power Pool/Upstate Coordinators Meetings. Invitees include representatives from the state of New York, offsite response organizations, FEMA and NRC. The meetings typically focus on upcoming exercises, out-of-sequence demonstrations to be evaluated and other REP-related issues.

6.2.4. REASONABLE ASSURANCE ASSESSMENTS

Exercises and Related Activities

- **Nine Mile Point Nuclear Station**
 - Nine Mile Point Plume Exercise held October 4–8
- **Robert E. Ginna Nuclear Power Station**
 - Robert E. Ginna Out-of-Sequence Bus Driver Interviews held June 6–9
 - Wayne County Out-of-Sequence Law Enforcement Interviews held June 6–9
 - Monroe County Out-of-Sequence Law Enforcement Interviews held June 6–9
 - Robert E. Ginna Plume Exercise held August 23–27
- **Salem and Hope Creek Generating Stations**
 - Salem Hope Creek Plume Exercise held April 26–30
 - Salem Hope Creek Out-of-Sequence Field Monitoring Team Evaluation held on May 19
 - Salem Hope Creek Emergency Worker Decontamination Center and Reception Center Out-of-Sequence Evaluations held on May 20

Drills

- **Indian Point Energy Center**
 - Putnam County Medical Services Drill held on May 19
- **Robert E. Ginna Nuclear Power Station**
 - Wayne County Medical Services Drill held June 6–9

- Monroe County Medical Services Drill held June 16–18

All FEMA Region 2 REP exercises, out-of-sequence evaluations and medical services drills were conducted in person in 2021 and will continue in 2022. At the recommendation of staff, for medical services drills, a mannequin was used as the patient for both the transportation portion and hospital portion of training to reduce the impact of COVID-19 on the participants. This approach worked well and generated positive feedback from participating offsite response organizations. FEMA Region 2 also supported nine out-of-region exercises and four dress rehearsals.

6.2.5. STAFF HIGHLIGHTS AND KUDOS

- A FEMA Region 2 staff member began mentoring an intern majoring in emergency management at the New York State University in Albany, New York.
- A staff member completed the HURREVAC training with the goal of better understanding a storm's potential impact and what factors determine a need for a PCA/DIR. HURREVAC is the decision support tool of the National Hurricane Program.
- A recently hired health physicist attended technical training courses, including the Radiological Accident Assessment Concepts Course, EPA Protective Action Guides Training Course, NRC Radiation Protection Computer Code Analysis and Maintenance Program User Training, and Radiological Operations Support Specialist Course.
- Throughout the year, the REP regional training manager coordinated with the REPP Branch's Training Section in scheduling and conducting REP training courses for staff and state planners. The Radiological Accident Assessment Concepts Course was held in person in Rensselaer, New York, and a virtual REP Core Concept Course was held for the state of New Jersey as well as county and local offsite response organizations.

6.3. FEMA Region 3

6.3.1. PRIORITIES

- The FEMA Region 3 Technological Hazards Branch evaluated more exercises than normal in 2021 due in large part to exercises having been postponed in 2020 because of the COVID-19 public health emergency.
- The Technological Hazards Branch assisted the FEMA Region 3 Response Division with disaster response and deployments, particularly in the first quarter of 2021, when vaccination programs were introduced in FEMA Region 3 states.
- FEMA Region 3 oversaw the decommissioning of the most symbolic nuclear power plant, the Three Mile Island Nuclear Generating Station, which was officially shut down in 2019. In the first quarter of 2021, the licensee was granted an exemption from the requirement for offsite emergency preparedness activities, including FEMA-evaluated exercises.

- FEMA Region 3 focused on the recruitment and onboarding of three new staff.
- FEMA Region 3 reviewed Alert and Notification Design Report changes for North Anna Power Station and Surry Power Station throughout the year.

6.3.2. STATE AND PRIVATE PARTNERSHIPS

The FEMA Region 3 Regional Business Emergency Operations Center (RBEOC) formally enhances two-way communication and engagement with the private sector throughout the disaster lifecycle, including pre-disaster preparedness, disaster response and post-disaster recovery. During activations, RBEOC members are invited to participate in daily calls to hear incident updates from Regional Response Coordination Center leadership, Emergency Support Function partners and affected state partners. Additionally, FEMA Region 3 hosts an annual Private Sector Readiness Day as an opportunity for businesses within the region to come together with emergency managers to talk through disaster scenarios, discuss priorities and concerns, and foster opportunities to coordinate.

- The mission of the FEMA Region 3 Regional Interagency Steering Committee (RISC) is to coordinate interagency and intergovernmental planning related to emergency management and homeland security. Members discuss, develop, review and document collaborative solutions that focus on preparing for, responding to, recovering from and mitigating against all hazards. RISC members are drawn from a cross-section of officials, emergency management leaders, emergency response providers, and leaders from federal and SLTT government throughout FEMA Region 3.
- The FEMA Region 3 Regional Advisory Council advises the regional administrator on emergency management issues specific to the region; identifies any geographic, demographic or other characteristics specific to any SLTT government within the region that might make preparedness, prevention, protection, response, recovery or mitigation more complicated or difficult; and advises the regional administrator on any weaknesses or deficiencies in preparedness, prevention, protection, response, recovery and mitigation efforts that should be addressed. The RISC coordinates emergency management initiatives and efforts with the Regional Advisory Council.
- The FEMA Region 3 Technological Hazards Branch staff support an annual Congressional Open House, where all FEMA programs are represented. This forum provides an opportunity for questions from congressional delegates and staffers to be answered by appropriate FEMA staff.
- The Technological Hazards Branch maintains communication with state and local REP partners through scheduled coordination meetings. FEMA Region 3 staff have leveraged innovative technologies such as Zoom to increase communication opportunities with partners.
- The FEMA Region 3 Technological Hazards Branch conducts an incredibly large number of shelter visits due to the large population base of our nuclear power plant EPZ. A coordinated team of regional FEMA staff, state and local government, school facility managers, and utility

representatives meet with the American Red Cross at specified shelter sites to conduct assessments of the facility, identify gaps and collect necessary shelter agreement paperwork that substantiates the shelter designation.

- The dedication of municipal volunteers from more than 80 municipal emergency operations centers within the Pennsylvania EPZ significantly enhanced response capabilities by adding hundreds of trained responders to support not only radiological incidents but all hazards and threats as well.

6.3.3. HIGHLIGHTS AND EVENTS

- The FEMA Region 3 REP Stakeholders Workshop was held virtually December 14–15, 2021, with a total of 130 registered participants. This annual event provides a forum for regional REP Program staff, the RAC, state and local REP planners, and industry emergency preparedness representatives. The intention is to present specific topics, provide updates and share ideas related to the REP Program.
- The FEMA Region 3 Technological Hazards Branch supports FEMA THD and regional working groups. The Technological Hazards Branch assigns working group representation to better engage in the improvement of both interagency goals and FEMA THD working group projects that embrace a changing and evolving program. Working group representatives attend meetings, share information from their respective groups and solicit input from staff. Working groups include:
 - Operational Readiness Coordination Activity (ORCA) – The ORCA serves as the primary point for integrating, synchronizing and coordinating readiness-related projects and activities in FEMA Region 3. The ORCA brings together members from each regional division to focus on readiness initiatives that are designed to improve readiness response to disasters and support survivors. The ORCA also manages FEMA Region 3 Readiness Days, which are held 10 times per year to coordinate regional readiness activities and provide training to improve staff’s ability to support emergency operations. All FEMA Region 3 staff are required to participate in Readiness Days to receive training and/or participate in exercises related to incident support and incident management functions.
 - Veterans Advisory Council (VAC) – The VAC is a subcommittee to the FEMA HQ VAC and is chaired by an executive officer, with a director, secretaries and trustees rounding out its membership. The FEMA Region 3 VAC is part of a 1,000-member-strong FEMA HQ VAC with representation from all FEMA regions. FEMA Region 3 VAC organizes annual Veterans Day celebrations, conducts quarterly meetings, recognizes the military service branches’ birthdays, aids newly employed FEMA veteran staff and promotes ideas that support our veterans. In addition, the VAC continually strives to build membership and supports the FEMA HQ VAC through participation in events and quarterly meeting attendance.

- Disaster-Initiated Review Standard Operating Procedure Working Group – This working group involves members from the National Preparedness Division and the Response Division. The purpose of the working group is to collaborate internally and coordinate between divisions to prepare for any disaster or event that would impact a commercial nuclear power plant and the ability of offsite response organizations to effectively implement their response plans. The standard operating procedure is updated every two years.
- State Analytical Profiles Working Group – The FEMA Region 3 State Analytical Profiles Working Group serves as the only source of state data for all regional employees during steady state and disaster operations. The intent is to provide a one-stop shop for all relevant data pertinent to FEMA Region 3 states to ensure consistency of data use throughout the region and provide ease of access when researching state-specific data. The FEMA Region 3 Technological Hazards Branch provides input for the state profiles on the eight nuclear power plants located within the region.
- Diversity and Inclusion Working Group (DIWG) – A member from the FEMA Region 3 Technological Hazards Branch serves on the DIWG. The primary mission of the DIWG is to build and nurture a culture of diversity, inclusion and innovation by developing and executing an inclusive and progressive annual diversity and inclusion curriculum aimed at fostering collaboration, creativity and education among all staff.
- FEMA CBRN Working Group – Members of the FEMA Region 3 Technological Hazards Branch and Response Division serve as regional coordinators to the CBRN Office. FEMA's Response Directorate, CBRN Office supports the all-hazards response mission through the development and maintenance of specialized expertise, capabilities and programs that help provide a coordinated response to CBRN-related threats and incidents. This includes working with the FEMA regional offices and each FEMA Regional CBRN Coordinator in the development of policies, plans, procedures and technical capacity in support of Regional CBRN preparedness and incident response activities.
- In 2021, FEMA Region 3 participated in a wide range of virtual educational opportunities. FEMA THD hosted several REP learning sessions throughout the year. Regional staff sent invitations for virtual sessions to state and local government partners for maximum participation. The REP learning sessions included, for example: Hostile Action-Based (HAB) Lessons Learned; GIS for HAB Incidents; REP Interactive Police Workshops; Inclusive Preparedness is Effective Preparedness; 2019 RPM Overview; Learning Session for the Federal Radiological Monitoring and Assessment Center and Radiological Assistance Program; and Sheltering and Mass Care. The Policy and Doctrine Branch hosted a training for the PTK and an ANS workshop. The REPP Branch's Training Section also hosted REP Quarterly Train-the-Trainer sessions and numerous REP Cross Walk Generator training sessions. The Oak Ridge Institute for Science and Education provided the Radiation Emergency Assistance Center/Training Site (REAC/TS) Micro REM Course.
- In 2021, FEMA Region 3 continued to facilitate public health emergency assessments for eight EPZ across the commonwealths of Pennsylvania and Virginia and the states of Delaware,

Maryland and West Virginia. During the onset of COVID-19, FEMA THD asked the regions to conduct these assessments to track the impact of the pandemic on REP communities. The initial public health emergency assessment required a massive coordination effort between FEMA, the five states and 45 county governments in addition to the risk jurisdictions. State planners provided FEMA with weekly reports that encompassed all 11 critical reporting areas, including communications and evacuation routes and the identification of any compensatory measures in place. The collaboration of agencies to accomplish and maintain the public health emergency assessment exemplifies the partnership and dedication of the response community in protecting the health and safety of the public.

- FEMA Region 3 staff were deployed to several states within the region to assist with COVID-19 vaccination missions. Three staff members, including the RAC Chair, were deployed to West Virginia as the operations branch director and division supervisors to run Walgreen’s Pharmacy pilot program. This team consisted of 25 FEMA reservists, the West Virginia Department of Health and Human Services, the West Virginia Department of Emergency Management, the West Virginia National Guard, and faculty from West Virginia University. More than 35,000 doses of vaccine were administered through this pilot initiative. FEMA Region 3 staff logged 950 hours (about 1.5 months) on this deployment. Several staff members also supported the FEMA Type 1 vaccination clinic in the city of Philadelphia, serving in a variety of capacities from greeters and escorts to task force leads. One staff member was deployed to Delaware to support a FEMA Type 1 vaccination center at the Dover Downs Speedway as a taskforce team lead, logging more than 120 hours (about 5 days) for this mission.



Vaccination Team at Dover Downs Speedway

Credit: FEMA Region 3 External Affairs

- The FEMA Region 3 training liaison coordinated and helped host five REP training courses and two TTXs with 146 total participants:
 - REP Core Concepts Course held May 24–26 and September 27–28
 - REP Post-Plume Awareness Course held on February 23 and June 8
 - REP Plume Plan Review Courses held June 21–24 and October 18–20

- REP Exercise Controller Course held on May 21
- REP Disaster-Initiated Review TTX with FEMA Region 2 and NRC (hosted by FEMA's THD) held on May 11
- REP Disaster Initiated Review TTXs with state and local governments held on June 2 and August 1
- REP Exercise Evaluator Course held November 1–3

6.3.4. REASONABLE ASSURANCE ASSESSMENTS

Exercises and Related Activities

FEMA Region 3 evaluated eight biennial plume exercises and one ingestion pathway exercise in 2021. The region also participated in a national-level DIR virtual TTX.

▪ Beaver Valley Power Station

- Beaver Valley Plume Exercise (Pennsylvania and West Virginia) Out-of-Sequence Evaluations held on March 25 and April 2
 - The virtual exercise, originally scheduled for June 2020, was postponed to November 2020. For the November 2020 exercise, only one risk jurisdiction participated due to COVID-19-related safety concerns.
 - The exercises involved 32 participating agencies consisting of one federal agency, five state agencies, two county agencies, 28 municipal agencies and one private sector agency. The exercise involved 11 FEMA evaluators and two contracted evaluators.
 - The West Virginia State EOC demonstrated capabilities by way of moveable cameras stationed in the facility and submitted supporting documents such as floor plans to evaluators. The Beaver Valley Power Station also introduced a new medical facility, Jameson Memorial Hospital, to support the treatment of contaminated patients from the EPZ.

▪ Calvert Cliffs Nuclear Power Plant

- Calvert Cliffs Plume Exercise held on September 14
 - The in-person exercise involved 69 participating agencies consisting of seven federal agencies, 18 state agencies, 41 county agencies and three private sector agencies. The exercise involved 14 FEMA evaluators and 10 contracted evaluators.
 - Noteworthy activities for Calvert Cliffs Nuclear Power Plant included a complete revision of the State Fixed Nuclear Facility plan and all three risk county plans in accordance with

the 2019 RPM changes by Maryland Emergency Management Agency (now Maryland Department of Emergency Management), the incorporation of Rad Responder and other information exchange systems for virtual accident assessment, and field team management by Maryland Department of Environment and Maryland Department of Environment's presentation on these systems to other offsite response organizations during FEMA Region 3's virtual REP Stakeholder Workshop.

▪ **Limerick Generating Station**

- Limerick Plume Exercise held November 15–19
 - Participants of this in-person exercise consisted of the Pennsylvania Emergency Management Agency, Bureau of Radiation Protection Accident Assessment and State Field Teams, Limerick EOC, three risk counties, two support counties, and 42 municipal EOCs.
- Limerick Out-of-Sequence Evaluations for Reception Centers, Monitoring and Decontamination Stations, and Mass Care Centers held on October 20 and November 17
- Limerick Out-of-Sequence Evaluations for 11 Risk School Districts, 24 Risk Schools, and 41 Mass Care Center Shelter and Facilities held December 1–2
 - A total of 71 federal evaluators were present for plume activities alone.

A noteworthy accomplishment is the dedication of hundreds of emergency workers, mostly volunteers who give back to their communities by attending training and exercises to better protect the health and safety of their communities. Multiagency cooperation and coordination are heavily relied upon to come together as a unified front and are exceptionally difficult with such a large population in the Limerick EPZ.

▪ **North Anna Power Station**

- North Anna Plume Dress Rehearsal (virtual, full participation) held on January 13
- North Anna Ingestion Dress Rehearsal (virtual, full participation) held on April 20
- North Anna Plume and Ingestion Pathway Exercise held May 4–5
 - This exercise was conducted in person with 93 participating agencies consisting of five federal agencies, 12 state agencies, 68 county agencies and seven private sector agencies. The exercise involved 15 FEMA evaluators and nine contracted evaluators.

- Due to the offsite response organizations' response to the COVID-19 public health emergency, FEMA Region 3 granted assessment activity credit to six EOCs and a joint information center (JIC) for mobilization, two schools for registration and sheltering of evacuees, and one hospital for equipment and supplies and proper handling of contaminated patients.
- North Anna Out-of-Sequence Evaluations held the week of June 8
 - The evaluations consisted of evacuation assembly centers; schools; backup, primary and exception area route alerting; and a medical services hospital. This site also submitted an alert and notification design change to the region, with the intent to adopt FEMA IPAWS/ Wireless Emergency Alerts (WEA) as the primary alerting method for the EPZ.
- **Peach Bottom Atomic Power Station**
 - 2020 Peach Bottom Plume Exercise (Pennsylvania) held on March 2
 - This exercise was conducted virtually for nine risk jurisdictions. Several jurisdictions, offsite response organizations and facilities received assessment activity credit for their participation in non-REP exercises (alternative demonstration activities), including:
 - The Commonwealth Response Coordination Center, including the Pennsylvania Emergency Management Agency and Bureau of Radiation Protection, was previously evaluated during the Three Mile Island Plume Exercise on May 7, 2019. Additionally, three risk and support jurisdictions and support facilities that included reception centers, monitoring and decontamination stations, and mass care centers were also evaluated by FEMA Region 3.
 - The Maryland Department of Emergency Management was credited for previous exercise demonstration at the Maryland State EOC, Maryland Department of the Environment on February 9, 2021, and March 12, 2021. All criteria within Cecil and Harford counties, except for two criteria, were also demonstrated virtually. A total of 20 county and municipal agencies participated in the virtual exercise demonstrations.

A noteworthy accomplishment in 2021 was the cross-state coordination between Pennsylvania and Maryland while preparing to respond with agreeable protective actions using one voice to communicate emergency information to the public. As a result of the COVID-19-related social distancing restrictions between 2020 and 2021, there were many real-world examples of emergency response that were similar and applicable to how a nuclear event response would unfold.

- **Salem-Hope Creek Nuclear Generating Stations**
 - Salem-Hope Creek Plume Exercise held on April 28

- The exercise was conducted in person with limited virtual participation and involved 25 participating agencies consisting of two federal agencies, 14 state agencies, four county agencies, three volunteer groups and two private sector agencies. The exercise also involved nine FEMA evaluators.
- FEMA Region 3 granted assessment activity credit for three evaluation criteria based on the offsite response organization’s response to the COVID-19 public health emergency.
- Traffic and Access Control Out-of-Sequence Evaluations held on April 26
- **Surry Power Station**
 - Surry Dress Rehearsal held on October 14
 - The city of Newport News exceeded expectations and requirements during their Evacuation Assembly Center demonstration conducted at Gildersleeve Middle School with its demonstration on processing 20 evacuees, eight service animals and two wheelchairs, as well as setting up a portable vehicle monitor. This site also submitted an alert and notification design change to the region, with the intent to adopt FEMA IPAWS/WEA as the primary alerting method for the EPZ.
 - Surry Plume Exercise held on October 26
 - The full participation exercise was conducted in person, with exercise credit granted for some criteria due to the commonwealth of Virginia’s participation in the North Anna Power Station Exercise in May 2021. The exercise involved 107 participating agencies consisting of three federal agencies, 10 state agencies, 80 county and city agencies, and 14 private sector agencies. The exercise involved 23 FEMA evaluators and 19 contracted evaluators.
 - Surry Out-of-Sequence Evaluations for Evacuation of Assembly Centers and Schools, Traffic/Access Control, and Transportation-Dependent Interviews were held the weeks of August 16 and August 23
- **Susquehanna Steam Electric Station**
 - Susquehanna Plume Exercise held August 9–13
 - Conducted in person and due to social distancing requirements for risk county and municipal EOCs, minimal evaluator staffing was involved at the request of the participants. A total of 81 state, county, municipal government and private sector agencies supported the exercise.

- Columbia and Luzerne counties, along with their risk municipalities, collaborated and attended pre-exercise training. The municipal staff in the Susquehanna Steam Electric Station EPZ have a long history of volunteerism in their localities that on some occasions goes back two or three generations. Having seven host counties that support the risk population surrounding an EPZ is uncommon. Additionally, having added services for the evacuating population that could relocate in any direction is an additional reassurance to the communities.

Drills

A total of 12 federally evaluated medical services drills were conducted in 2021. Six of those evaluations were virtual and included assessment activity credit for the entity's response to COVID-19. Credit was approved by the FEMA Region 3 RAC Chair for criteria 6.d.1 (patient handling) and 1.e.1 (equipment and supplies). The remaining criterion, 3.a.1 (exposure control), was conducted using a virtual evaluation with each hospital's nuclear medicine support staff. These included interviews related to operability demonstrations of survey instrumentation to meet the intent of the demonstration criteria.

- **Beaver Valley Power Station**
 - Washington Hospital (Pennsylvania) held on April 1
- **Calvert Cliffs Nuclear Power Plant**
 - MedStar Saint Mary's Out-of-Sequence Evaluation held on June 17
- **Peach Bottom Atomic Power Station**
 - Upper Chesapeake Medical Center (Maryland) held on February 9
 - Union Hospital (Maryland) held on March 12
- **Salem-Hope Creek Nuclear Generating Stations**
 - Christiana Hospital (Delaware) held on April 28
- **Susquehanna Steam Electric Station**
 - Geisinger Wyoming Valley Medical Center (Pennsylvania) held on April 24
 - Geisinger Bloomsburg Hospital (Pennsylvania) held on May 19

The six in-person drills included:

- **Beaver Valley Power Station**
 - Weirton Medical Center (West Virginia) held on March 31
 - UPMC Jameson Hospital (Pennsylvania) held on October 14
- **Calvert Cliffs Nuclear Power Plant**
 - St. Mary's Hospital (Maryland) held on June 17
- **Peach Bottom Atomic Power Station**
 - Wellspan York Hospital (Pennsylvania) held on June 10
- **Surry Power Station**
 - Virginia Commonwealth University Hospital (Virginia) held on October 27
 - Riverside Medical Center (Virginia) held on October 27

Coordination was necessary between FEMA, states, counties and medical services hospitals to agree upon a uniform method of maintaining an acceptable level of preparedness; virtual demonstrations were conducted until a level of normalcy allowed for in-person evaluations. Some medical services hospitals had 10–15 staff participating virtually to support the initiative while still focusing on their internal response to the COVID-19 pandemic.

FEMA Region 3 also supported four out-of-region exercises, two dress rehearsals and one out-of-sequence evaluation.

6.3.5. STAFF HIGHLIGHTS AND KUDOS

FEMA Region 3 successfully filled three site specialist vacancies in the Technological Hazards Branch. The specialists collectively bring substantial experience to the REP Program; their backgrounds include fire and hazardous materials, the U.S. Navy's nuclear power propulsion program, emergency management for a naval hospital, and expertise in CBRN threats through the U.S. Army CBRN. Hiring these personnel filled a critical void in what was arguably the busiest year ever for the Technological Hazards Branch.

6.4. FEMA Region 4

6.4.1. PRIORITIES

- The FEMA Region 4 REP Technological Hazards Branch implemented the use of a Tasker Tracker through SharePoint. This streamlined the document management process to ensure proper tracking of documents that require review and signature for further forwarding to other areas such as finance, the FEMA Regional Administrator, and states and counties. Additionally, it allows daily workflow to feed both the ALC and the Biennial Preparedness Report while establishing a consistently executed program.
- FEMA Region 4 continues to support the transition to the 2019 RPM. This is a work in progress as site specialists coordinate with their corresponding states and counties to ensure compliance with the 2019 RPM. The average number of hours spent is 40–80 hours per plan, dependent on the jurisdiction type (state versus county).
- For plan reviews, various procedures for technical activities required editing to meet the intent of 2019 RPM planning criteria, such as medical services drills, reception and congregate care centers, and emergency worker decontamination. The current RPM update has forced staff as well as state and local agencies to focus more stringently on plans to ensure they address worst-case scenarios resulting from an incident at a nuclear power plant. The average time for reviewing procedures can vary from 20–40 hours.
- FEMA Region 4 continues to communicate training opportunities to state and local jurisdictions as well as FEMA Region 4 REP Program staff. Virtual training in 2021 included the REP Core Concepts Course and REP Plan Review, which were provided to states and counties within the region. In-person training has been on pause due to the COVID-19 pandemic; however, multiple training courses are expected to be held in early 2022 in preparation for multiple ingestion exercises scheduled.

6.4.2. STATE AND PRIVATE SECTOR PARTNERSHIPS

- FEMA Region 4 engaged with communities directly via phone, email and/or virtual platforms such as WebEx and Microsoft Teams. Staff participated in planning, quarterly meetings and task force meetings and provided technical assistance during training sessions, observation-only drills and exercise dress rehearsals.
- The Center for Domestic Preparedness' offering of regional classes and attendance at trainings in other FEMA regions are untapped opportunities to educate REP communities about the REP Program.
- The primary methods used to communicate with offsite response organizations to implement the REP Program at the regional level temporarily changed in 2021. Increased communication via virtual platforms has occurred more frequently due to COVID-19 restrictions. FEMA Region 4 has found that prolonged virtual interaction has led to a breakdown of communication across all

sites; thus, the primary goal in FEMA Region 4 is to fully provide in-person communication regarding REP Program implementation when possible.

- The primary method of the Regional Assistance Committee interaction remains virtual. Adobe Connect is being used for RAC meetings. Future meetings in February 2022 and May 2022 are scheduled to be in person.
- The major topics of concern expressed by offsite response organizations centered on their familiarity with the RPM and requirements in accordance with the 2019 version, the future of the REP Program and impacts of pandemic-related events.
- FEMA Region 4's approach to addressing concerns is to provide in-person technical assistance thorough plan reviews. Nearly all jurisdictions and REP Program staff and leadership have recognized the importance of providing face-to-face interactions for assistance.

6.4.3. HIGHLIGHTS AND EVENTS

- FEMA Region 4 completed its transition to the 2019 REP Program Manual. The intention is to have all states and counties within FEMA Region 4 adapt to the 2019 RPM evaluative methods. All states and counties have begun editing plans as required to meet requirements. All biennial exercises and drills conducted in 2021 aligned with the 2019 evaluation methodology; the potential impact will be more streamlined and consistent evaluations and plans. The next steps are to ensure all state and county plans applicable to the REP Program are edited to ensure alignment with the 2019 RPM by the end of calendar year 2022.
- FEMA Region 4 began working to streamline deliverables post-exercise, specifically the narrative drafted by evaluators. The region aims to decrease workload, stress and burnout of evaluators during the post-exercise phase to better meet tight deadlines for inclusion of observations in the participants and public meetings. This is still a work in progress and being monitored to ensure written observations in the form of a narrative are meeting the intent of the deliverables to be used by the site specialist, branch leadership and the RAC Chair. The expected impact is also to decrease compensatory time granted for evaluators. Next steps are to continue monitoring narrative deliverables from evaluators to ensure they obtain information necessary to support attaining exercise objectives and continuation of reasonable assurance.

6.4.4. REASONABLE ASSURANCE ASSESSMENTS

Exercises and Related Activities

The greatest challenges for evaluating exercises and drills have been navigating the impacts of COVID-19 and the additional approvals and documentation required for travel. Travel restrictions have eased since the start of the COVID-19 public health emergency, and states began lifting restrictions related to COVID-19 at various times throughout 2021. FEMA Region 4 worked through challenges in supporting offsite response organizations by providing additional flexibility for

evaluation methods, namely through virtual evaluations. The following sites conducted in-person biennial plume exercises in 2021:

- **Turkey Point Nuclear Generating Station**
 - Turkey Point Plume Exercise held February 8–12
- **Virgil C. Summer Nuclear Generating Station**
 - Virgil C. Summer Plume Exercise held March 1–4
- **H. B. Robinson Nuclear Generating Station**
 - H. B. Robinson Plume Exercise held May 17–20
- **Browns Ferry Nuclear Plant**
 - Browns Ferry Plume Exercise held June 21–25
- **Grand Gulf Nuclear Station**
 - Grand Gulf Plume and Ingestion Pathway Exercise held July 12–16
- **McGuire Nuclear Station**
 - McGuire Plume Exercise held August 2–5
- **Shearon Harris Nuclear Power Plant**
 - Shearon Harris Plume Exercise held on September 14
- **Joseph M. Farley Nuclear Plant**
 - Joseph M. Farley Plume Exercise held September 20–24
- **Watts Bar Nuclear Plant**
 - Watts Bar Plume Exercise held October 18–22
- **Edwin I. Hatch Nuclear Power Plant**
 - Edwin I. Hatch Plume Exercise held November 1–4

One exercise was postponed. All exercises included at least one virtual evaluator of the public information and warning objective from the joint information system (JIS).

Drills

FEMA Region 4 evaluated more than 20 in-person drills in 2021, including medical service drills, emergency worker and decontamination, reception and congregate care center, traffic control, and school interviews. FEMA staff used various platforms such as WebEx, Teams and Zoom to support planning and evaluation of exercises and drills. Most planning meetings in early 2021 were virtual due to COVID-19. States such as Georgia and South Carolina continued to conduct virtual planning meetings. Evaluations of drills and exercises remained in person for 2021.

Staff Assistance Visits

FEMA Region 4 staff completed 55 SAVs that were a combination of virtual and in person to accommodate FEMA travel restrictions as well as COVID-19-related restrictions across states and counties.

6.4.5. STAFF HIGHLIGHTS AND KUDOS

- Multiple staff members were deployed and assisted across the region in supervisory roles in response to COVID-19 vaccination efforts.
- FEMA Region 4 staff were nominated for the 46th annual Atlanta Federal Executive Board Employee of the Year Award for the Outstanding Partnership Award. Though not selected, the staff's accomplishments as demonstrated by their unwavering performance supporting the COVID-19 vaccine campaign (an initiative to assist states with federal coordination of vaccine delivery) in the first and second quarters of 2021 were unparalleled and had a direct impact on the president's vaccine initiative to aid in slowing the spread of COVID-19, an unprecedented pandemic.
- Though the professional development of FEMA Region 4 staff was severely slowed in the first half of 2021 due to pandemic-related travel restrictions, multiple employees continued their individual development outside of the agency. One staff member completed two courses toward their master's degree, while another continued their PhD work in Emergency Management. Further, FEMA recognized 10 employees deployed for disaster support with the Monetary Special Act Award. Approximately \$20,000 was given in appreciation for their extraordinary contributions to the public health emergency response and recovery.

6.5. FEMA Region 5

6.5.1. PRIORITIES

- FEMA Region 5 Technological Hazards Branch completed 10 scheduled REP exercises. A normal annual schedule in FEMA Region 5 includes seven or eight exercises, so the increased workload was a very heavy lift for the staff. Additionally, there were still COVID-19-related concerns in 2021 and the continued possibility of additional postponements. It was imperative that FEMA Region 5

make every reasonable effort within the regulations to evaluate the exercises. In addition, FEMA Region 5 completed many out-of-sequence demonstrations.

- FEMA Region 5 focused on giving offsite response organizations the opportunity to receive incident credit for non-REP events that could be applied to REP exercises. The region also gave offsite response organizations the opportunity to use the alternate approach method to traditional exercises.

6.5.2. STATE AND PRIVATE SECTOR PARTNERSHIPS

- American Electric Power
- Sheriff of Berrien County, MI
- Constellation Energy
- DTE Energy
- DeWitt County, IL, Emergency Management Agency
- Energy Harbor
- Entergy Nuclear
- Grundy County, IL, Emergency Management Agency
- Illinois Emergency Management Agency
- LaSalle County, IL, Emergency Management
- Lucas County, OH, Emergency Management Agency
- Michigan State Police
- Minnesota's Homeland Security and Emergency Management
- Manitowoc County, WI, Emergency Services
- Monroe County, MI, Emergency Management Division
- NextEra Energy Resources
- Ogle County, IL, Emergency Management Agency
- Ohio Emergency Management Agency
- Ottawa County, OH, Emergency Management Agency

- Prairie Island Indian Community
- Sherburne County, MN, Emergency Management Agency
- Van Buren County, MI, Office of Domestic Preparedness
- Wisconsin Emergency Management
- Sheriff of Wright County, MN
- Xcel Energy

6.5.3. HIGHLIGHTS AND EVENTS

- FEMA Region 5 staff planned and implemented the 2021 Training and Exercise Planning Workshop
- FEMA Region 5 staff attended the August REP Workshop in Monterey, California

6.5.4. REASONABLE ASSURANCE ASSESSMENTS

Exercises and Related Activities

- **Palisades Nuclear Plant**
 - Palisades Plume (Partial) Exercise held on March 9
- **Byron Station**
 - Byron Plume (Partial) Exercise held on March 23
- **Davis-Besse Nuclear Power Station**
 - Davis-Besse Plume (Full) Exercise held on May 4
- **Fermi 2 Power Plant**
 - Fermi 2 Plume (Partial/Recovery, Reentry, Return) Exercise held on May 18
- **Dresden Generating Station**
 - Dresden Plume (Full) Exercise held on July 20
- **Monticello Nuclear Generating Plant**
 - Monticello Plume (Full) Exercise held on August 10

- **Point Beach Nuclear Plant**
 - Point Beach Plume (Full) Exercise held on September 14
- **DC Cook Nuclear Plant**
 - DC Cook Plume (Partial) Exercise held on September 21
- **Clinton Power Station**
 - Clinton Ingestion (Partial/Ingestion Pathway Exercise) Exercise held on November 16
- **LaSalle County Generating Station**
 - LaSalle Ingestion Exercise held on November 17

6.5.5. STAFF HIGHLIGHTS AND KUDOS

- New hires in FEMA Region 5 included a Wisconsin/Michigan team lead and a GIS specialist.
- The three team leads did exceptionally well while facing a very difficult and busy year with an unprecedented number of REP exercises.
- The FEMA Region 5 Technological Hazards Branch staff was the recipient of the Chicago Federal Executive Board's Champion of COVID-19 Award on May 13, 2021.
- The FEMA Region 5 Technological Hazards Branch staff participated in the May 13, 2021, No-Notice FEMA Region 5 Thunderbolt Earthquake Exercise.
- Several staff deployed virtually to support the region's COVID-19 public health emergency response.
- FEMA Region 5 staff continues to be an active partner in providing input into the enhancements of PTK.
- FEMA Region 5 team leads have supported FEMA HQ with the rollout of actual incident credit documents, ALC checklists, plan reviews, etc.
- FEMA Region 5 had a DIR Team on standby for four days to support FEMA Region 4's response to Hurricane Elsa, which was declared a disaster in Florida.

6.6. FEMA Region 6

6.6.1. PRIORITIES

- The COVID-19 public health emergency and the continued safety concern for REP Program staff and state and county emergency workers who were conducting exercises and out-of-sequence evaluations were a top concern and priority in 2021. FEMA Region 6 Technological Hazards Branch staff evaluated all exercises virtually. Several out-of-sequence drills were delayed due to health and safety concerns and rescheduled during the last quarter of 2021. Additionally, Hurricane Ida presented challenges for coordinating the Waterford 3 Plume Exercise and out-of-sequence drills. All Waterford 3 Steam Electric Station evaluated activities were rescheduled to the first quarter of 2022.
- FEMA Region 6 conducted its first virtual DIR for Waterford 3 Steam Electric Station and a virtual PCA for River Bend Station on September 3, 2021, because of the damage sustained by Hurricane Ida.
- FEMA Region 6 staff assisted the REPP Branch Training Section as co-instructors for the REP Exercise Evaluator (in person), REP Core Concepts (virtual) and REP Plan Review (virtual) courses. Additionally, regional staff mentored and trained new staff members.
- In 2021, FEMA Region 6 staff conducted plan reviews for Grand Gulf Nuclear Station, Waterford 3 Steam Electric Station and Comanche Peak Nuclear Power Plant to assist the offsite response organizations with the transition to the 2019 RPM. Plan reviews for River Bend Station, South Texas Project Nuclear Plant and Arkansas Nuclear One began in November 2021 and are ongoing.

6.6.2. STATE AND PRIVATE SECTOR PARTNERSHIPS

- FEMA Region 6 staff were instrumental in conducting initial plan reviews for the state of Louisiana to assist with the transition to the 2019 RPM; Louisiana was one of the first states to adopt the new program guidance. The region continues to support as needed.

6.6.3. HIGHLIGHTS AND EVENTS

- FEMA Region 6 staff conducted the first virtual PCA and DIR in response to Hurricane Ida.
- FEMA Region 6 staff continued to support the REPP Branch Training Section, as needed.
- FEMA Region 6 staff continued to support several national working groups.

6.6.4. REASONABLE ASSURANCE ASSESSMENTS

Exercises and Related Activities

- **River Bend Station**
 - River Bend Plume Exercise held on March 31
- **Grand Gulf Nuclear Station**
 - Grand Gulf Plume Exercise held on July 13
 - This exercise was conducted both virtually and in person and evaluated against the 2019 RPM.
- **South Texas Project**
 - South Texas Project Plume Exercise held on July 28

Drills

- **Arkansas Nuclear One**
 - Saint Mary's Regional Medical Center, Medical Services Drill (virtual) held on November 18
 - Morrilton Medical Clinic, Medical Services Drill (virtual) held on December 9
- **Comanche Peak Nuclear Power Plant**
 - Texas Harris Methodist Hospital, Medical Services Drill (virtual) held on December 8
- **River Bend Station**
 - W. Feliciana Parish Hospital, Medical Services Drill (in person) held on November 17
 - Jackson Fire Department, Emergency Worker Monitoring and Decontamination Drill (in person) held on November 17
- **South Texas Project**
 - Lake Granbury Medical Center, Medical Services Drill (virtual) held on February 9
 - Matagorda Regional Medical Center, Medical Services Drill (virtual) held on November 5
 - Matagorda Regional Medical Center, Medical Services Drill (virtual) held on December 2

Medical services drills were postponed to calendar year 2022 for Comanche Peak Exercise, Palacios Medical Center and Our Lady of the Lake Medical Center. FEMA Region 6 also supported seven out-of-region exercises and one dress rehearsal.

Several out-of-sequence evaluations were postponed in Louisiana due to COVID-19 and Hurricane Ida response efforts. In Arkansas and Texas, some locations also experienced COVID-19-related difficulties such as coordinating drills and negotiating alternative assessments (virtual demonstrations). Some challenges included the continued postponement of drills due to offsite response organizations' COVID-19 response (particularly for medical drills). Virtual drills and exercises are not ideal for evaluation and not all evaluation items are conducive to virtual demonstrations. Lastly, creating the draft AARs manually to meet the 30-day deadline for dissemination to the states was also a challenge.

FEMA Region 6 will continue to apply lessons learned and focus on gaining a better understanding of how to conduct alternative assessment activities and how to work with our stakeholders. To address challenges in supporting offsite response organizations, REP Program staff will continue to plan and coordinate exercises and drills on virtual platforms, as needed.

6.6.5. STAFF HIGHLIGHTS AND KUDOS

- One priority for FEMA Region 6 is to train three new staff members.

6.7. FEMA Region 7

Four states in FEMA Region 7 are each home to an operating nuclear power plant. There are also two nuclear power plants in FEMA Region 7 that are permanently shut down and in the decommissioning process.

- Callaway Energy Center is located in Missouri and has four risk jurisdictions.
- Cooper Nuclear Station is located in Nebraska and has two risk jurisdictions in Nebraska and one in Missouri.
- Quad Cities Generating Station is located in Illinois (FEMA Region 5), but half the EPZ includes two risk jurisdictions in Iowa (FEMA Region 7).
- Wolf Creek Generating Station is located in Kansas and has one risk jurisdiction.
- Duane Arnold Energy Center, located in Iowa, and Fort Calhoun Station, located in Nebraska, are permanently shut down and decommissioning.

The REP Program is truly a whole-of-community effort. Offsite radiological emergency preparedness at each of the operating nuclear power plants listed above is supported by numerous state, county and local agencies, as well as organizations including emergency management, health, public safety, law enforcement, fire and emergency medical services, schools, hospitals, and volunteer

organizations. A typical biennial exercise cycle for any nuclear power plant in FEMA Region 7 may include participation from 10–20 state agencies, 20 or more county and local agencies and volunteer organizations, multiple schools, day care providers, hospitals, other private sector partners, and federal support agencies such as the National Weather Service and USDA. The number of participants increases significantly for ingestion pathway or HAB exercises. The Cooper Nuclear Station is also unusual in that the 50-mile ingestion pathway EPZ includes portions of all four states in FEMA Region 7, presenting an additional opportunity for the states and counties to collaborate and share potential best practices.

As noted, the Quad Cities Generating Station’s EPZ crosses state and FEMA regional boundaries. We work closely with FEMA Region 5 to coordinate evaluation activities as much as possible to promote consistency. Coordination was challenging in 2021 due to the ongoing COVID-19 public health emergency. Both states and jurisdictions often had varying levels of impacts and restrictions or requirements related to COVID-19. This required each exercise, drill or other REP Program activity to be assessed to determine the best course of action for completing or postponing evaluations.

6.7.1. PRIORITIES

- Due to the impacts of COVID-19, states and offsite response organizations in FEMA Region 7 were not able to complete all their required REP Program activities in 2020, as reported in the ALC. FEMA Region 7 Technological Hazards Branch staff worked closely with each state to develop corrective action plans for the ALC to track and address shortfalls. As the COVID-19 public health emergency continued through 2021, including the rapid rise of the COVID-19 Delta variant throughout the region, FEMA continued working with the states to identify innovative approaches to complete the requirements, such as virtual training.
- Two biennial exercises were postponed in 2020, resulting in a need to conduct an offsite biennial exercise for all four nuclear power plants in 2021. The major focus throughout the year was on coordinating with the states, offsite response organizations, nuclear power plants and other stakeholders to develop and conduct those exercises. FEMA Region 7 implemented a variety of methods to mitigate the impacts of COVID-19, including an increased use of virtual platforms for meetings and a provision of assessment activity credit based on COVID-19 response operations for applicable evaluation criteria. Also, there was a reduction of participant and evaluator “footprint” by conducting additional out-of-sequence evaluations (some virtual) and when necessary, a postponement of events.
- FEMA Region 7 used PTK in support of exercise planning and execution processes. Exercise documents and state and offsite response organization plans and procedures are stored in PTK and accessible to site specialists, evaluators and others, as needed. Evaluation narratives and issues are also captured in PTK and exported for development of the AARs and improvement plans.

- The Callaway Energy Center began a revision to their alert and notification system in 2020 to transition from sirens to IPAWS as their primary alert and notification system. FEMA Region 7 continued coordinating with the utility, the state of Missouri and FEMA's THD to review and revise the Alert and Notification System Design Report and associated plans and procedures until it was approved by FEMA's THD in July 2021.
- Cooper Nuclear Station revised their ANS Design Report to include the relocation of one siren (due to flooding concerns), an updated encoder system and other minor changes.
- The state of Kansas made numerous revisions to the State Radiological Emergency Response Plan and Operating Procedures, which required approximately 60 hours (about 2.5 days) of FEMA staff review and coordination.
- Atchison County Emergency Management Department in Missouri updated their plans, which required about four hours to review in addition to a site assistance visit.
- FEMA staff spent four hours reviewing updated plans of the Otoe County Reception and Care Center prior to their out-of-sequence drill to implement new processes.
- The Northwest Missouri State University Reception Center updated their plan to account for a new facility and processes being implemented. The review required six hours.
- FEMA Region 7 hired two site specialists in early 2020. Although one specialist was already qualified as a REP exercise evaluator, both needed additional training, which has been difficult to complete because of COVID-19. The region worked closely with FEMA THD to identify other training opportunities, including a site specialist workshop and other virtual courses, to develop and improve staff capabilities. FEMA Region 7 also hosted an in-person REP Exercise Evaluator Course with seven participants.

6.7.2. STATE AND PRIVATE SECTOR PARTNERSHIPS

- FEMA Region 7 Technological Hazards Branch staff engage with communities near each nuclear power plant through quarterly meetings, observe and provide advice and training at dress rehearsals, and conduct outreach and workshops (typically prior to an ingestion pathway exercise). FEMA Region 7 staff also review and provide comments on plan updates and conduct exercise planning in collaboration with offsite response organizations through frequent, informal communications.
- Reliance on virtual communications tools such as Zoom and WebEx increased throughout the year due to ongoing COVID-19 concerns. One of the region's primary events that focused on bringing together all stakeholders was the RAC meeting, which was held virtually and engaged more than 50 participants.

- The major topics of concern expressed by states and offsite response organizations in 2021 primarily revolved around the health and safety of exercise participants and compliance with state or local health requirements (such as masking and social distancing). There were also concerns about the availability of resources (personnel, in particular) to plan and conduct exercises while actively responding to the public health emergency, staff burnout and vacancies, and the reduced availability of training opportunities.
- Opportunities to increase engagement with communities may include recovery-related workshops, HAB exercise workshops and participation in non-FEMA-evaluated drills. These and similar events can enhance information-sharing and collaboration without the weight of a formal evaluation being conducted.

6.7.3. HIGHLIGHTS AND EVENTS

- FEMA Region 7 worked closely with states, offsite response organizations and nuclear power plants to successfully plan and conduct three post-plume exercises, one ingestion pathway exercise, five dress rehearsals, four medical services drills, three reception center drills and five out-of-sequence drills.
- FEMA Region 7 Technological Hazards Branch staff supported 13 out-of-region exercises and drills and provided a total of 25 evaluations.
- Two members of the FEMA Region 7 staff are participants of several REP Program national-level working groups and initiatives, including the national REP Program Training Cadre Working Group, the PTK Working Group, the Policy Advisors Working Group, the Annual Report Working Group and the REP-21 and 22 Writing Team.

6.7.4. REASONABLE ASSURANCE ASSESSMENTS

Exercises and Related Activities

- **Cooper Nuclear Station**
 - Cooper Plume/Ingestion Dress Rehearsals held April 6–7
 - Cooper Post-Plume Exercise/Ingestion Exercise held May 24–28
 - These exercises were postponed from 2020. The dress rehearsal and exercises were primarily conducted in-person.

“...Being objectively evaluated greatly enhances our ability to respond to real events with knowledge and confidence. It also builds the confidence of our communities in us as responders, as they know we plan, exercise and train...Were it not for our relationship with our partners in the REP program, we would not have the capabilities we have to serve the population we serve.”

— Emergency Manager in Atchison County, Missouri

- **Quad Cities Generating Station**

- Quad Cities Dress Rehearsal held June 23–24
- Quad Cities Post-Plume Exercise held June 28–July 1
 - This exercise was postponed from 2020. At the request of the state, FEMA Region 7 implemented several alternative approaches to conducting events, including provision of credit for COVID-19 response operations, increased use of out-of-sequence drills to reduce the footprint and use of virtual platforms to conduct interview evaluations when possible.

- **Callaway Energy Center**

- Callaway Plume Dress Rehearsal held August 18–19
- Callaway Post-Plume Exercise held September 20–23

The following exercises were scheduled for 2021 but not completed due to various factors:

- Due to COVID-19, the state of Kansas requested and was granted relief from the frequency requirement to conduct the Wolf Creek Generating Station exercise scheduled for November 2021. The exercise and other out-of-sequence drills will be rescheduled no later than November 2022 (tentatively scheduled for August 2022).
- The state of Iowa requested and was granted relief from the frequency requirement to conduct two medical services drills scheduled for December 2021 for Quad Cities Generating Station. These drills will be rescheduled during the first quarter of 2022.
- The Duane Arnold Energy Center was scheduled for a biennial post-plume exercise and associated out-of-sequence drills. However, the plant ceased power operations and permanently shut down earlier than planned due to damage from a derecho in 2020. Due to the amount of time the plant had been shut down, resulting in a reduction in potential offsite effects in the event of an emergency, the offsite exercise was cancelled.

Drills

▪ Callaway Energy Center

- Out-of-Sequence Evaluations for Medical Services Drill (virtual and in person) held on November 9 and 16
- National Weather Service/Emergency Alert System, Radio Station (KTXY) Drill held on December 13

▪ Cooper Nuclear Station

- National Weather Service, Pleasant Hill, MO, Drill (virtual) held on July 6
- National Weather Service, Valley, NE, Drill (virtual) held on June 16
- Out-of-Sequence Evaluations for Reception Center (in person) held May 25 and October 21
- Out-of-Sequence Evaluations for Medical Services Drill (in person) held on November 16 and December 16

▪ Quad Cities Generating Station

- Out-of-Sequence Evaluations for Emergency Worker Decontamination, Reception Center and Interviews held September 27–28 and October 5
- National Weather Service Drill (virtual) held on October 5

▪ Wolf Creek Generating Station

- Out-of-Sequence Evaluations for Medical Services Drill held on September 29 and October 13
- Out-of-Sequence Evaluations for School Interviews held on November 17

“...Participating in all exercises has given us experience in working with different groups and causes us to think outside the box and see what else could be going on during an emergency that is not covered by the exercise...”

— Emergency Manager at Richardson County, Nebraska Emergency Management Agency

FEMA Region 7 also supported 10 out-of-region exercises, two dress rehearsals and one medical services drill.

6.7.5. STAFF HIGHLIGHTS AND KUDOS

- Two staff members were selected for and participated in the REP Early Career Education Program sponsored by the Center for Homeland Defense and Security. The REP Early Career Education Program provides an educational forum and innovation lab for participants to explore emerging trends in the world around us in technology, society and terrorism. Participants discuss

both the challenges associated with these complex trends as well as the opportunities to rethink how we protect our communities and the nation. In addition, program sessions assist participants in understanding emerging strategies for implementing innovative ideas, being a leader and pursuing a successful REP career.

- Two staff members were deployed to support the St. Louis Community Vaccination Site in support of the FEMA Region 7 COVID-19 response.
- One staff member was deployed to Baton Rouge, Louisiana, (FEMA Region 6) as the Air Operations Branch Director in support of Hurricane Ida response efforts. As a result of experience gained during the deployment, the employee achieved full qualification for this position in the FEMA Qualification System, joining a small cadre of only a few qualified personnel.

6.8. FEMA Region 9

6.8.1. PRIORITIES

- FEMA Region 9 Technological Hazards Branch staff focused on plan and procedure reviews. The transition from NUREG-0654/FEMA-REP-1, Rev. 1 to NUREG-0654/FEMA-REP-1, Rev. 2 continues for both the Palo Verde Generating Station and Diablo Canyon Power Plant. The state of Arizona is actively utilizing NUREG-0654/FEMA-REP-1, Rev. 2 and the 2019 RPM. Offsite response organizations in California are coordinating closely with FEMA Region 9 with their plan to support a transition that incorporates unique challenges and concerns.
- FEMA Region 9 conducted two biennial exercises in one calendar year, which is rare. The exercise evaluations were closely coordinated with offsite response organizations to meet their needs regarding response efforts to COVID-19.
- FEMA Region 9 hosted the REP Exercise Evaluator Course on December 14–17, 2021. The region plans to host several REP courses to support qualifying RAC members and FEMA Region 9 staff as REP evaluators in 2022.

6.8.2. STATE AND PRIVATE SECTOR PARTNERSHIPS

- FEMA Region 9 routinely communicates with offsite response organizations via in-person SAVs, telephone, virtual meetings and email. The region conducts outreach as much as possible using a variety of resources. However, COVID-19 created engagement challenges in those efforts due to competing priorities.
- FEMA Region 9 coordinates closely with other national preparedness programs to ensure all opportunities to educate REP communities about the REP Program are leveraged. This includes invitations by state or county entities to speak at civic events such as homeowners' association meetings, community fairs and other outreach events.

- FEMA Region 9 communicated routinely with the region's RAC via email and conducted the annual RAC Meeting in person on October 12, 2021. The meeting was hosted by DOE, the National Nuclear Security Administration and the Radiological Assistance Program Region 7. Nine agencies and a total of 17 participants (five joined virtually) were in attendance. Discussions revealed that RAC members are interested in being more engaged in exercises and receiving a follow-up on Fukushima.

6.8.3. HIGHLIGHTS AND EVENTS

- The Arizona REP Plans Repository was created on the state's SharePoint to provide a shared drive for all regional stakeholders to access and update REP plans. The goal is to eliminate issues with version control and allow easy and remote access to critical plans and standard operating procedures in any emergency. FEMA Region 9 will continue to collaborate with the state of Arizona to improve the repository layout and add a feature to notify users when updates to plans and procedures are made.
- FEMA Region 9 established a framework to address and close the 39 open plan issues that were identified in the Arizona Comprehensive Plan Review. The framework provides for coordination with the state of Arizona through technical assisted visits, plan update reviews and providing additional information, as needed. The framework establishes the closure of open plan issues to be completed in the first quarter of 2022.
- FEMA Region 9 continued to support offsite response organizations for the Diablo Canyon Power Plant as much as possible during the COVID-19 public health emergency. FEMA, state and local participants discussed a variety of ways to successfully conduct evaluations. Circumstances required that FEMA and offsite response organizations creatively plan and collaborate more closely to ensure that all demonstration criteria were evaluated, assessed and/or validated within the biennial cycle for the nuclear power plant. The 2021 Palo Verde Generating Station biennial exercise was successfully evaluated in person on March 9, 2021. FEMA Region 9 executed the evaluation with limited staff represented from other regions and FEMA HQ.
- The standard operating procedure for Diablo Canyon Power Plant in San Luis Obispo, California, that addresses the evacuee monitoring and decontamination center facility was used as a reference to develop a working model for maintaining traffic, establishing registration and vaccine tables, and addressing security.

6.8.4. REASONABLE ASSURANCE ASSESSMENTS

Exercises and Related Activities

- **Diablo Canyon Power Plant**
 - Diablo Canyon Plume Dress Rehearsal held on August 11
 - Diablo Canyon Plume Exercise held on September 15

- This exercise, originally scheduled for 2020, was postponed due to the COVID-19 public health emergency.
- **Palo Verde Generating Station**
 - Palo Verde Generating Plume Dress Rehearsal held on February 2
 - Palo Verde Generating Plume Exercise held on March 9
 - Offsite response organizations in Arizona fully participated in the exercise. The evaluation for the capability target connected to public information and rumor control was postponed until December 8, 2021.

Drills

- **Diablo Canyon Power Plant**
 - Diablo Canyon Medical Services Drill held on January 21
 - Out-of-sequence exercises were conducted for several centers the week of March 2, 2021. The evaluations were conducted during the activation of the public health emergency.
 - Portions of the postponed Diablo Canyon Plume Exercise were conducted out of sequence during actual activations and other events when activities could be easily demonstrated. All SAVs were in-person for California; a mix of in-person and virtual visits took place in Arizona.
- **Palo Verde Generating Station**
 - Palo Verde Medical Services Drill held on December 9
 - Medical services drills for both Diablo Canyon Power Plant and Palo Verde Generating Station were conducted with limitations, and some components were postponed until 2022 due to the COVID-19 public health emergency.

6.8.5. STAFF HIGHLIGHTS AND KUDOS

- FEMA Region 9 staff were deployed in February 2021 as team leaders to regional mobile vaccine units and fixed vaccine sites. The staff managed teams of reservists and permanent full-time employees and worked in conjunction with emergency medical technicians and nurses to register community members impacted by COVID-19. The team leads received recognition for outstanding service in administering life-saving vaccines to Californians.

- A FEMA Region 9 staff member served a continuous deployment from December 2020 through March 7, 2021, in the state of Arizona to support the COVID-19 public health emergency and support preparations for the Palo Verde Plume Exercise.
- The RAC Chair was deployed March 7–May 15, 2021, as the team lead for a special border mission in the state of Arizona. The team lead managed a team of volunteer liaisons to the Operations and Planning Section to address the concerns raised by the Arizona Department of Emergency Military Affairs, Emergency Management Director Allen Clark. Those concerns covered the “4 Ts” – testing, temporary housing, transportation and treatment – of individuals crossing the border into the state. The experience allowed the RAC Chair to work closely with offsite response organizations and other federal agencies to address the concerns and needs of the state.
- FEMA Region 9 staff were recognized for their leadership skills and active participation in the COVID-19 vaccine mission.
- Staff participated in two different leadership programs, graduating from the Center for Homeland Defense and Security Executive Leadership Program in November 2021 and the San Francisco Executive Board Leadership program in June 2021.

6.9. FEMA Region 10

6.9.1. PRIORITIES

FEMA Region 10 Technological Hazards Branch focused on a return to the normalcy of in-person exercises and drills, collaborating with the offsite response organizations in preparation for the exercise and closing out the 2016 RPM.

6.9.2. STATE AND PRIVATE SECTOR PARTNERSHIPS

FEMA Region 10 had a successful year despite challenges due to the ongoing COVID-19 public health emergency. Communications and meetings with offsite response organizations were maintained and, in some ways, improved due to technologies being used in lieu of face-to-face visits. Rather than having to plan and travel to a formal meeting, both staff and stakeholders became much more comfortable engaging in impromptu meetings using platforms such as Microsoft Teams and Zoom. In addition to planning for the 2021 Columbia Generating Station Plume Exercise, the region worked closely with offsite response organizations and the utility on a long-range exercise calendar to update plans and train and operate in a socially distanced environment.

6.9.3. HIGHLIGHTS AND EVENTS

- The REP Learning Sessions hosted throughout the year by FEMA’s THD were well-received and widely attended by FEMA Region 10 staff, offsite response organizations and the Columbia Generating Station personnel. The sessions included topics such as the 2019 RPM, REP Policy

Overview, HAB Exercise Lessons Learned and Federal Radiological Monitoring and Assessment Center and Radiological Assistance Program overview, among others.

- The Technological Hazards Branch in FEMA Region 10 supported several of FEMA's THD working groups, including the GIS Working Group, SharePoint Working Group, FEMA Region 10 VAC, PTK Working Group, REP Regional Training Team, Annual Report Working Group and the Policy Working Group.

6.9.4. REASONABLE ASSURANCE ASSESSMENTS

Exercises and Related Activities

- **Columbia Generating Station**
 - Columbia Dress Rehearsal Plume Exercise held on August 24
 - Due to the length of time that had passed before being able to convene for the exercise, a second dress rehearsal was held in 2021.
 - Columbia Plume Exercise held on October 26
 - The regularly scheduled Columbia Generating Station plume dress rehearsal was held February 25, 2020, shortly before COVID-19 shut down normal operations, which caused a postponement of the evaluated exercise until fall of 2021.

Drills

- **Columbia Generating Station**
 - Benton County Emergency Management; Kennewick Fire Department; Trios Health Southridge Hospital; and the Washington State Department of Health, Office of Radiation Protection Medical Services Drill held on April 29
 - Benton County Emergency Management; Richland Fire Department; Kadlec Regional Medical Center; and the Washington State Department of Health, Office of Radiation Protection Medical Services Drill held on June 7

The consensus of the offsite response organizations was that the constant activation for COVID-19 and wildland fires helped them to be better prepared to successfully respond to all-hazards threats, including radiological emergencies.

6.9.5.

STAFF HIGHLIGHTS AND KUDOS

- The FEMA Region 10 RAC Chair was deployed to support the Regional Response Coordination Staff Operations Section as the emergency services branch director on July 29, 2021. The brief deployment was in response to a magnitude 8.2 megathrust earthquake off the coast of the Alaskan Peninsula. A tsunami warning was issued by the National Oceanic and Atmospheric Administration but later cancelled. The earthquake was followed by several aftershocks, including three recorded at magnitudes 5.9, 6.1 and 6.9, respectively. This was the largest earthquake in the United States since the 1965 Rat Islands earthquake and the seventh largest earthquake in the country's history. Fortunately, there were no casualties or serious damage reported. No other members of the staff were deployed in 2021.

Deployments of any kind develop our response skills for all hazards, which in turn benefits the REP Program.

- A site specialist, who joined FEMA Region 10 in 2018 after a distinguished career in the U.S. Air Force, was promoted to senior site specialist. In August, the Technological Hazards Branch gained an administrative assistant through a detail from the FEMA Office of the Regional Administrator. In November, a lateral transfer was made to make the move permanent. The administrative assistant joined the staff with a great deal of experience in FEMA as well as the private sector and has been a valuable addition to the team.

7. REP Program Observations and Lessons Learned

- During 2021, a mix of in-person, hybrid and virtual meetings were used to conduct exercises and related activities, providing accommodation for social distancing preferences and requirements.
- Conducting post-exercise participant briefings virtually using Zoom increased attendance by eliminating participants having to travel a long distance from their job sites. In addition, the virtual public meetings provided a convenient opportunity for members of the public to attend without the need for social distancing. Using virtual platforms will potentially reduce the cost of exercises by eliminating the contracting expense for reserving meeting rooms.
- The Limerick Biennial plume exercise provided an opportunity for FEMA Region 3 to pair numerous new evaluators with an on-the-job training status with experienced mentors and evaluators. This practice contributed to new evaluators making progress toward being credentialed as a Type III REP Program exercise evaluator.
- State and local officials submitted requests for and were approved to receive drill and exercise demonstration credit for actual response activities. For example, a FEMA Region 6 site specialist was able to assess critical elements due for an evaluation via interview and incorporate those details into the unabridged AAR. This approach downsized the in-person evaluation team. Real-

world credit was also provided for the state of Louisiana's response to an Unusual Event emergency classification level at Grand Gulf Nuclear Station earlier in the year.

- In Arizona, Palo Verde's offsite response organizations' full-scale participation in out-of-sequence exercises (drills) provided for realistic training and performance experience. The local offsite response organizations used the medical services exercise to demonstrate their access control capabilities and practiced using the "Jaws of Life" on an actual vehicle. The scenario involved a traffic accident within the 10-mile EPZ during a release of radioactive material. The injuries were contaminated, and the accident required using heavy equipment, such as the Jaws of Life. The offsite response organizations blended the practical applications of an exercise with training requirements for the fire departments.
- Palo Verde Generating Station's offsite response organizations established a SharePoint repository of state, municipal and NGO plans. The SharePoint resource is managed by the Arizona Department of Emergency and Military Affairs. SharePoint has proven to be an excellent way for offsite response organizations to manage their plans by allowing access to update and remove old plans in an efficient manner rather than mailing or emailing out copies quarterly. Additionally, having all REP plans in one location simplifies the logistics of staging exercises for the principal offsite response organizations agency (in this case, Arizona Department of Emergency and Military Affairs). The SharePoint resource also helps to manage the challenges posed by version control. FEMA site specialist staff have easy access to the latest offsite response organization plans to review and post on the PTK, prior to FEMA-evaluated exercises. Overall, this new practice has been a work in process, but it has certainly proved to enhance accuracy and efficiency and has worked extremely well in plugging into other FEMA tools such as the PTK when managing exercises.
- In FEMA Region 9, the Diablo Canyon Power Plant's offsite response organizations conducted their postponed 2020 biennial exercise, completing their demonstration criteria. The offsite response organizations used real-life activations for wildfires and the COVID-19 public health emergency to demonstrate their ability to protect the health and safety of the public; both activations were deemed applicable to the REP program requirements, and those requirements were determined to have been met. By conducting the evaluations at various times and utilizing real-world events, FEMA and the offsite response organizations were instrumental in responding to the COVID-19 public health emergency in their communities.
- In FEMA Region 7, a medical services drill was evaluated virtually for Callaway Energy Center, which presented several challenges. The evaluator's view was limited by the camera, so many of the interactions between the hospital and EMS staff were difficult to observe. The onsite controller often had to ask the participants to repeat an action or conversation for the evaluator or to pause to allow the camera operator to get into position. In some cases, this bordered on prompting the participants, as it became obvious that the evaluator was looking for something. Observations of equipment and dosimetry-related criteria were especially difficult to conduct virtually. The natural flow of operations, coordination and communication between the exercise participants was disrupted, resulting in the drill being more of a training event than an

assessment of capability. During the hot wash, several of the participants stated they did not feel this was an effective method for conducting this type of drill.

- When reviewing an offsite response organization’s request for REP assessment credit based on actual response operations or other activities, some criteria (or capability targets) may be eligible for credit, but the activity will still need to be performed (even if not evaluated) during an exercise. For example, criteria 1.c.1 under the 2016 RPM may have been adequately demonstrated through other operations and eligible for credit. However, those activities will still need to be conducted during an exercise as part of the overall management of the response. Even if an activity is not formally evaluated during the exercise, it is likely still a critical, interconnecting function that could cause issues with other parts of the exercise if executed poorly. Although this is not necessarily a reason to deny credit, it should be discussed with the offsite response organizations to ensure they understand.
- When providing assessment credit, using virtual tools, or implementing other measures to reduce the potential for exercise participants’ exposure to COVID-19, it is critical to document those measures in the extent of play agreement, which should include what measures have been implemented; expected effects on exercise execution or flow; any criteria that will not be evaluated by FEMA; any special instructions or procedures for players, controllers and evaluators; and other information, as needed.

8. Conclusion

In 2021, FEMA evaluated an unprecedented number of REP Program exercises and numerous drills to assess reasonable assurance. Emergency workers and community volunteers participated in training and played a tremendous role in radiological emergency preparedness planning and response operations across regions. The REP Program continued to develop the data analytics project to enhance programmatic decision-making. The accomplishments shared in this report affirm the REP community’s critical role in building a culture of preparedness, strengthening and sustaining the critical elements necessary to support the five mission areas – prevention, protection, mitigation, response and recovery – and staying steadfastly committed to safeguarding the health and safety of the public in the communities surrounding commercial nuclear power plants.

Appendix A: Acronym List

AAR	After-Action Report	FRPCC	Federal Radiological Preparedness Coordinating Committee
ALC	Annual Letter of Certification		
ANS	Alert and Notification System	GIS	Geospatial Information System
A-Team	Advisory Team for Environment, Food and Health	HAB	Hostile Action-Based
CBRN	Chemical, Biological, Radiological and Nuclear	IAEA	International Atomic Energy Agency
CFR	Code of Federal Regulations	IPAWS	Integrated Public Alert and Warning System
CSEPP	Chemical Stockpile Emergency Preparedness Program	IPR	In-Progress Review
DHS	U.S. Department of Homeland Security	NGO	Non-Governmental Organization
DIR	Disaster-Initiated Review	NRC	U.S. Nuclear Regulatory Commission
DIWG	Diversity and Inclusion Working Group	ORCA	Operational Readiness Coordination Activity
DOE	U.S. Department of Energy	PCA	Preliminary Capabilities Assessment
EOC	Emergency Operations Center	PIM	National REP Program Public Information Map
EPA	U.S. Environmental Protection Agency	PTK	Preparedness Toolkit
EPZ	Emergency Planning Zone	PPE	Personal Protective Equipment
ERG	Emergency Relocation Group	RAC	Regional Assistance Committee

RAC AC	Regional Assistance Committee Advisory Council	RPM	REP Program Manual
		SAV	Staff Assistance Visit
RACES	Radio Amateur Civil Emergency Service	SLTT	State, Local, Tribal and Territorial
RBEOC	Regional Business Emergency Operations Center	THD	Technological Hazards Division
REAC/TS	Radiation Emergency Assistance Center/Training Site	TTX	Tabletop Exercise
		USDA	U.S, Department of Agriculture
REP	Radiological Emergency Preparedness	VAC	Veterans Advisory Council
RISC	Regional Interagency Steering Committee	WEA	Wireless Emergency Alerts

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Appendix B: Glossary of REP Terms

Advisory Team for Environment, Food, and Health (A-Team): The A-Team includes representatives from the EPA, USDA, U.S. Department of Health and Human Services (Food and Drug Administration), the Centers for Disease Control and Prevention, and other federal agencies, as needed. The A-Team, supported by the FRPCC, develops coordinated advice and recommendations on environmental, food, health and animal health matters for the Incident Command/Unified Command, the Joint Field Office, the Unified Coordination Group, the federal agency with primary authority, and/or state and local governments, as appropriate. The A-Team uses information provided by the Interagency Modeling and Atmospheric Assessment Center, Federal Radiological Monitoring and Assessment Center, and other relevant sources. The A-Team makes protective action recommendations, not decisions; provides coordinated technical and scientific advice through the state and federal agency with primary authority; and bases its recommendations on science and best practices.

After-Action Report (AAR): Summarizes key exercise-related evaluation information, including the exercise overview and analysis of objectives and core capabilities.

Alternative REP demonstrations: Exercises and drills outside of the REP Program; FEMA will consider the demonstration and assessment of REP Program objectives/capability targets during these events.

Alert and notification system (ANS): The system used to alert and notify the public, including the physical means (equipment and methods) and administrative means (organizational responsibility and interaction of responsible organizations for alert and notification).

Annual letter of certification (ALC): Used to facilitate monitoring of REP Program planning and preparedness; each state that has a REP Program annually submits an ALC to the appropriate FEMA regional administrator. The ALC assists FEMA in making reasonable assurance findings and determinations regarding offsite radiological emergency plans and procedures and preparedness.

Assessment: The evaluation and interpretation of radiological measurements and other information to provide a basis for decision-making. Assessments can include projections of offsite radiological impact.

Authority having jurisdictions: In reference to the REP evaluator position task book, an authority having jurisdiction is an entity with the authority and responsibility for the development, implementation and oversight of the qualification process within its organization or jurisdiction. This may be a state, local, or federal agency or private sector partner.

Biennial: Every two calendar years.

Capability targets: Performance thresholds for each core capability. REP Program–specific capability targets are derived from the planning standards of 44 CFR Part 350, support evaluation criteria from NUREG-0654/FEMA-REP-1, Rev. 2 and are used as the baseline for assessing offsite response organizations’ preparedness in terms of core capabilities.

Commercial nuclear power plant: A facility licensed by the NRC to use a nuclear reactor to produce electricity.

Congregate care center: A facility for temporary housing, care and feeding of evacuees.

Core capabilities: Distinct critical elements necessary to achieve the National Preparedness Goal.

Design report: The part of the ANS Evaluation Report where the physical means and technical components of the ANS are detailed.

Drill: A coordinated, supervised activity usually employed to validate a specific operation or function in a single agency or organization. Drills are commonly used to provide training on new equipment, develop or validate new policies or procedures, or practice and maintain current skills.

Disaster-initiated review (DIR): As addressed in the FEMA/NRC memorandum of understanding, the DIR’s purpose is to formally determine the offsite emergency response infrastructure and capabilities to effectively implement approved emergency plans.

Evaluation: The process of observing exercise performance to document strengths and

opportunities for improvement in an entity’s preparedness and response capability. Evaluation is the first step in the improvement planning process.

Evaluation criteria (NUREG-0654/FEMA-REP-1, Rev. 2): Describe approaches that FEMA and NRC consider acceptable for use in implementing specific parts of each of the agencies’ regulations, particularly the 16 planning standards. They are not a substitute for regulations, and compliance is recommended but not required.

Full-scale exercise: Typically the most complex and resource-intensive type of exercise. They involve multiple agencies, organizations and jurisdictions and validate many facets of preparedness. Full-scale exercises often include many players operating under cooperative systems such as the Incident Command System or Unified Command.

Geospatial information system (GIS): A system designed to capture, store, manipulate, analyze, manage and present all types of geographical data.

Health physics: The science of recognizing, evaluating and controlling health hazards from ionizing radiation.

Host or support jurisdiction: A geographical area that is at least 5 miles, and preferably 10 miles, beyond the boundaries of the plume exposure pathway EPZ (i.e., 15–20 miles from the commercial nuclear power plant) where functions such as congregate care, radiological monitoring, decontamination and registration are conducted.

Ingestion exposure pathway exercise: Exercises that include mobilization of state, local and tribal government personnel and

resources and implementation of emergency plans to demonstrate response capabilities to a release of radioactive materials requiring post-plume phase protective actions within the ingestion exposure pathway EPZ. These exercises are conducted at least once every eight years. See evaluation criterion N.2.b for additional information.

Integrated Public Alert and Warning System (IPAWS): A comprehensive, coordinated, integrated system that can be used by authorized public officials to deliver effective alert messages to the American public. IPAWS is the nation's next-generation infrastructure of alert and warning networks and ensures that the president can alert and warn the public under any condition. IPAWS will provide federal, state, local, tribal and territorial warning authorities the capabilities to alert and warn their communities of all hazards impacting public safety and well-being via multiple communication pathways.

Joint information center (JIC): A location that facilitates operation of the JIS, where personnel with public information responsibilities perform critical emergency information functions, crisis communications and public affairs functions.

Joint information system (JIS): A structured approach to organizing, integrating and delivering information that ensures that timely, accurate, accessible and consistent messages can be delivered across multiple jurisdictions and/or disciplines to the media, NGOs and the private sector. Critical supporting elements of the JIS include the plans, protocols, procedures and structures used to provide public information.

Medical services drill: These drills involve a simulated, contaminated emergency worker

and/or member of the general public and contain provisions for participation by support services agencies (e.g., ambulance and offsite medical treatment facility). These drills are conducted annually at each medical facility designated in the emergency plan and may be referred to as MS-1 drills. See evaluation criterion N.4.b for additional information.

Level 1 Finding: An observed or identified inadequacy of organizational performance during an assessment activity that could result in a determination that offsite emergency preparedness is not adequate to provide reasonable assurance that appropriate protective measures can be taken in the event of a radiological emergency to protect the health and safety of the public living in the vicinity of a nuclear power plant.

Level 2 Finding: An observed or identified inadequacy of organizational performance during an assessment activity that is not considered, by itself, to adversely impact public health and safety.

National Preparedness Goal: A DHS/FEMA doctrine describing what it means for the whole community to be prepared for the types of incidents that pose the greatest threat to the security of the nation, including acts of terrorism and emergencies and disasters, regardless of cause. The goal itself is: "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."

National Preparedness System (NPS): An organized process to achieve the National Preparedness Goal of a secure and resilient nation.

Offsite response organization: Any state, local, or tribal governmental organization; private or voluntary organization; or licensee offsite response organization formed when state, local and/or tribal governments choose not to participate in the REP Program that is responsible for carrying out emergency response functions during a radiological emergency.

Partial participation exercise: As set forth in 44 CFR Part 350.2(k), the engagement of state, local and tribal personnel in an exercise sufficient to adequately test direction and control functions for protective action decision-making related to the emergency action levels and communication capabilities among affected offsite response organizations and the licensee.

Plume exposure pathway exercise: These exercises are conducted biennially. These exercises include mobilization of licensee or state, local and tribal government personnel and resources and implementation of emergency plans to demonstrate response capabilities within the plume exposure pathway EPZ. See evaluation criterion N.2.a for additional information.

Radio Amateur Civil Emergency Service (RACES): A protocol created by FEMA and the Federal Communications Commission (FCC Part 97, Section 407). Many government agencies across the country train their Auxiliary Communications Service (ACS) volunteers using the RACES protocol. The volunteers serve their respective jurisdictions pursuant to guidelines and mandates established by local emergency management officials. RACES volunteer operators are activated by local, county and state

jurisdictions and are the only Amateur Radio operators authorized to transmit during declared emergencies when the president of the United States specifically invokes the War Powers Act.

Radiological Emergency Preparedness (REP) exercise: An event involving organizational responses to a simulated commercial nuclear power plant incident with radiological consequences. The purpose of a REP exercise is to test the integrated capabilities of onsite organizations and offsite response organizations to implement emergency functions set forth in their radiological emergency response plans and procedures.

Radiological Emergency Preparedness (REP) Program: Refers to both FEMA and NRC programs that administer emergency preparedness for commercial nuclear power plants and surrounding areas and encompasses the plans, training, exercises and resources necessary to prepare emergency response personnel to rapidly identify, evaluate and respond to radiological emergencies.

Reasonable assurance: A determination that NRC licensee or applicant onsite plans and state, local and tribal government and utility offsite plans and preparedness are adequate to protect public health and safety in the emergency planning areas of a commercial nuclear power plant.

Regional Assistance Committee (RAC): A group of representatives from a number of federal agencies who have agreed to assist the FEMA regions in providing technical assistance to offsite response organizations and to evaluate radiological emergency response plans, procedures and exercises on the basis of their special authorities, missions and expertise.

REPP Branch Chief: FEMA HQ individual responsible for implementation of the national FEMA REP Program.

Risk jurisdiction: Government entities located in a region that is impacted during a radiological incident due to its proximity to a commercial nuclear power plant. This is defined as 5–10 miles within the boundaries of the plume exposure pathway EPZ (i.e., less than 15–20 miles away from the commercial nuclear power plant).

Schools: In the context of the REP Program, the term “schools” refers to public and private schools and licensed or government-supported preschools.

Staff assistance visit (SAV): Visits that provide assistance to offsite response organizations. A SAV may be initiated by the FEMA Regional Office or requested by the offsite response organization. The purpose of the SAV may

include a wide range of topics, for example, providing technical assistance to the offsite response organizations regarding their plans and procedures or their implementation, or supporting development or completion of state requests for plan or procedure approval under 44 CFR Part 350.

Tabletop exercise (TTX): Typically held in an informal setting intended to generate discussion of various issues regarding a hypothetical, simulated emergency. TTXs can be used to enhance general awareness; validate plans and procedures; rehearse concepts; and/or assess the types of systems needed to guide the prevention of, protection from, mitigation of, response to and recovery from a defined incident. Generally, TTXs are aimed at facilitating conceptual understanding, identifying strengths and areas for improvement, or achieving changes in attitudes.

Wireless Emergency Alert (WEA) system: Delivers emergency messages sent by authorized government entities alerting authorities through your mobile carrier. Types of alerts include extreme weather and other threatening emergencies, AMBER alerts, and presidential alerts during a national emergency.