ENVIRONMENTAL HEALTH

Capability Definition

Environmental Health is the capability to protect the public from environmental hazards and manage the health effects of an environmental health emergency on the public. The capability minimizes human exposures to environmental public health hazards (e.g., contaminated food, air, water, solid waste/debris, hazardous waste, vegetation, sediments, and vectors). The capability provides the expertise to run fate and transport models; design, implement, and interpret the results of environmental field surveys and laboratory sample analyses; develop protective guidance where none exists; and use available data and judgment to recommend appropriate actions for protecting the public and environment. Environmental Health identifies environmental hazards in the affected area through rapid needs assessments and comprehensive environmental health and risk assessments. It works closely with the health community and environmental agencies to link exposures with predicted disease outcomes, provides input in the development of Crisis and Emergency Risk Communication (CERC) messages, provides guidance on personal protective measures, and advises on environmental health guidelines.

Outcome

After the primary event, disease and injury are prevented through the quick identification of associated environmental hazards, including exposure to infectious diseases that are secondary to the primary event as well as secondary transmission modes. The at-risk population (i.e., exposed or potentially exposed) receives the appropriate countermeasures, including treatment or protection, in a timely manner. The rebuilding of the public health infrastructure, removal of environmental hazards, and appropriate decontamination of the environment enable the safe re-entry and re-occupancy of the impacted area. Continued monitoring occurs throughout the recovery process in order to identify hazards and reduce exposure.

Relationship to National Response Plan Emergency Support Function (ESF)/Annex

This capability supports:

ESF #1: Transportation
ESF #3: Public Works and Engineering
ESF #5: Information and Planning
ESF #6: Mass Care, Housing and Human Services
ESF #8: Public Health and Medical Services
ESF #10: Oil and Hazardous Materials Response
ESF #11: Agriculture and Natural Resources
ESF #14: Long Term Community Recovery and Mitigation
Worker Safety and Health Support Annex
Nuclear/Radiological Incident Annex
Catastrophic Incident Annex
Oil and Hazardous Materials Incident Annex

Preparedness Tasks and Measures/Metrics

Activity: ***Develop and Maintain Plans, Procedures, Programs, and Systems***	
Critical Tasks	
General Environmental Health	
Res.B3c 1.1.1	Provide environmental health input to the development of plans or the jurisdictional planning process (evaluation and revision)
Res.B3c 1.1.1.1	Develop plans and protocols for coordinating the environmental health function into response activities (evaluation and revision)
Res.B3c 1.1.2	Identify the appropriate environmental health official and insure their inclusion in the incident command staff
Res.B3c 1.1.2.1	Identify an 'Environmental Health Coordination Unit' and develop a mechanism for their inclusion in the appropriate coordination organization (e.g., ICP, EOC, JFO)
Res.B3c 1.1.3	Integrate and supervise a plan for environmental monitoring
Res.B3c 1.1.4.1	Develop capacity for the personnel and resources necessary to create and maintain geo-coded databases of key environmental health infrastructure and to effectively share information during emergency response
Res.B3c 1.1.6	Develop a plan to coordinate the various elements of environmental health among Federal, State, and local response
Res.B3c 1.1.5	Identify appropriate expertise needed for all aspects of environmental health response
Res.B3c 1.1.7	Develop inputs into the Crisis and Emergency Risk Communication (CERC) plan
Res.B3c 1.1.4	Coordinate to insure interoperable and redundant communication equipment
Res.B3c 1.1.3.1	Coordinate environmental health efforts (e.g., response work, database management of environmental sample results, interpretation of results, and risk communication)
Res.B3c 1.1.3.2	Coordinate with the appropriate agencies for the analysis and database management of environmental samples and for the interpretation of results and risk communication
Res.B3c 1.1.3.3	Coordinate with public and private laboratories to ensure redundancies of capability
Res.B3c 1.1.3.4	Resolve confidentiality issues for sharing of information from laboratory results
Potable Water Supplies	
Res.B3c 1.2.2	Develop and maintain all-hazards emergency response procedures and protocols for assessment of Public Water Utility, Alternative Water Supplies (Hauled Water, Bulk Water, Bottled Water), Unregulated systems (individual wells), and Temporary or mobile treatment systems (Reverse Osmosis Purification Unit, Portable onsite treatment)
Res.B3c 1.2.3	Develop standard operating procedures (SOPs) for prioritizing the provision of potable water to affected populations and key facilities.
Res.B3c 1.2.4	Develop Environmental Health Strike Team of appropriately trained personnel to ensure safety and integrity of potable water supply and delivery system
Res.B3c 1.2.1.1	Develop emergency guidelines and operation criteria for limited operations (boil water or do not drink order) and plan for dissemination to public and policyholders in cooperation with water utilities

Res.B3c 1.2.4.1	Develop and maintain intrastate mutual aid agreements with water providers and relevant health and environment entities for assistance in disaster response/emergency events (WARN, mutual aid)
Res.B3c 1.2.4.2	Develop and maintain interstate agreements with water providers and relevant health and environment entities for assistance in disaster response/emergency events (EMAC)
Res.B3c 1.2.5	Develop and maintain a geo-coded database of all Safe Drinking Water Act (SDWA) drinking water facilities
Food Supplies	
Res.B3c 1.3.1	Develop capacity for the personnel and resources necessary to create and maintain a geo-coded database of the food supply and delivery system
Res.B3c 1.3.2	Ensure the existence of MOUs or other contractual agreements needed to share resources such as food inspection personnel, equipment, and databases
Res.B3c 1.3.3	Address mechanisms to recommend the closing of facilities or operations, and address non-compliance with recommendations in environmental health plans
Res.B3c 1.3.4	Address mechanisms to re-open food supply and delivery operations and facilities in environmental health plans
Res.B3c 1.3.2.1	Conduct hazard needs assessment and staffing surge requirements in the area of food supply and delivery
Res.B3c 1.3.2.2	Develop Environmental Health Strike Team of appropriately trained personnel to ensure safety and integrity of food supply and delivery system
Res.B3c 1.3.2.3	Develop materials and personnel to conduct just-in-time training for food protection
Res.B3c 1.3.2.4	Coordinate with public and private laboratories to develop plans for the lab testing necessary to ensure safety of the food supply and delivery system
Res.B3c 1.3.5	Ensure that environmental COOP planning addresses personnel and resources necessary to ensure the safety of the food supply and delivery system and mechanisms to prioritize response actions
Res.B3c 1.3.6	Develop capacity for rapid communications and data sharing (including geo-coded data) during emergency response
Wastewater Management	
Res.B3c 1.4.1	Develop and maintain all-hazard emergency response plans, procedures, and programs for the collection, treatment, and disposal of waste water (liquid waste and sewage) during emergency events to include Public Waste Water Utility, Alternative Waste Water (portable toilets, temporary lagoons, waste hauling), Unregulated systems (individual septic tanks), and Land applications
Res.B3c 1.4.2	Develop and maintain all-hazards emergency response procedures and protocols for assessment of the following types of facilities: Public Waste Water Utility, Alternative Waste Water, (portable toilets, temporary lagoons, waste hauling), Unregulated systems (individual septic tanks) and Land applications
Res.B3c 1.4.1.1	Develop standard operating procedures (SOPs) for the prioritization of the collection, treatment, and disposal of waste water (liquid waste and sewage) for affected populations and priority facilities (e.g., shelters, hospitals, etc).
Res.B3c 1.4.3.1	Develop and maintain intrastate mutual aid agreements with waste water collection, treatment, and disposal organizations and relevant health and environment entities for assistance in disaster response/emergency events (WARN, mutual aid)

Res.B3c 1.4.3.3	Develop Environmental Health Strike Team of appropriately trained personnel to ensure safety and integrity of wastewater systems
Res.B3c 1.4.3.2	Develop and maintain interstate agreements with waste water collection, treatment, and disposal organizations and relevant health and environment entities for assistance in disaster response/emergency events (EMAC)
Res.B3c 1.4.4	Develop and maintain a geo-coded database of all waste water facilities (e.g., treatment plants, lift stations, etc.)
Vector Surveillance	
Res.B3c 1.5.1	Develop plans, procedures, and programs for vector control
Res.B3c 1.5.2	Develop plan for assessing local vector control infrastructure prior to event and how it has been damaged during the event
Res.B3c 1.5.3	Develop plan to assist local vector control while they rebuild capabilities
Res.B3c 1.5.1.1	Develop disease specific emergency response plan for vector control including; insect, arthropod and rodent vectors
Res.B3c 1.5.1.2	Compile and review existing emergency vector control guidelines to include surveillance and control of insect, arthropod and rodent vectors.
Res.B3c 1.5.1.3	Develop new emergency vector control guidelines where none currently exist that include surveillance and control of insect, arthropod and rodent vectors.
Res.B3c 1.5.1.4	Develop communications plan for vector control to include control measures for the public and public agencies
Res.B3c 1.5.4	Develop, at the local level, the capability to create a geo-coded data base of all geographic locations assessed for vectors including locations that were treated, e.g., larvicides, spraying, etc.
Res.B3c 1.5.3.1	Develop Environmental Health Strike Team of appropriately trained personnel to perform vector control operations
Res.B3c 1.5.2.1	Assemble an assessment and inventory of current capacity, both public and private, to perform vector control
Building Environment	
Res.B3c 1.6.1	Develop plans, procedures, and protocols for providing environmental health support during re-entry operations
Res.B3c 1.6.1.1	Develop procedures and guidelines for building re-entry
Res.B3c 1.6.2	Assess power supply and generators for priority structures and identify alternative power sources
Res.B3c 1.6.1.2	Develop a plan with checklist for evaluating re-entry and re-occupancy of facilities (e.g., homes, educational, institution and health care facilities) that establishes evaluation process, assessment criteria, and indicators of safe re-occupation
Res.B3c 1.6.3	Develop communications plan for safety and environmental related hazards associated with re-entry and re-occupation of homes and facilities
Res.B3c 1.6.4	Develop and implement a monitoring system to determine status of rehabilitation efforts and health and safety issues associated with re-entry and re-occupancy
Res.B3c 1.6.4.1	Develop capacity to assess community structures and determine safe operations
Res.B3c 1.6.5	Develop Environmental Health Strike Team of appropriately trained personnel to ensure

	safety of building environments
Outdoor Environment	
Res.B3c 1.7.1	Conduct research and establish health-risk based tolerance thresholds for key contaminants; including updating existing methods and developing new ones where none exist
Res.B3c 1.7.2.1	Identify susceptible and vulnerable populations
Res.B3c 1.7.3	Develop and maintain a geo-coded database of potential hazards (e.g., refineries, chemical plants, mines, medical waste depositories, etc.)
Res.B3c 1.7.4	Inventory monitoring and sampling capabilities
Res.B3c 1.7.5	Develop an all-hazards communications plan
Res.B3c 1.7.6.1	Develop MOUs between and among public and private laboratories to provide redundant capabilities
Res.B3c 1.7.3.1	Conduct geo-coded baseline monitoring for all environmental media
Res.B3c 1.7.2	Conduct environmental vulnerability assessments
Res.B3c 1.7.6.2	Develop Environmental Health Strike Team of appropriately trained personnel to ensure safety of outdoor environments
Res.B3c 1.7.7	Coordinate with appropriate remediation teams for all contingencies
Support for Mass Care	
Res.B3c 1.8.1	Develop plans, procedures, and programs for environmental health support of mass care and sheltering facilities
Res.B3c 1.8.1.1	Develop mass care and sheltering guidelines that include safety/ food/air/water/wastewater sanitation/solid and biomedical waste requirements for all mass care facilities to include: shelters, housing, ice/food distribution, feeding sites, and other care facilities
Res.B3c 1.8.1.2	Develop mass care and sheltering guidelines that include food safety and sanitation requirements
Res.B3c 1.8.2	Develop shelter guidelines that include requirements for provision of safe drinking water from all sources and that include recommendations for alternate sources
Res.B3c 1.8.3	Develop shelter guidelines that include requirements for sanitation and number of portable toilets (e.g., toilets, porta-potties, and hand washing facilities)
Res.B3c 1.8.3.1	Identify sources and pre-arrange for delivery and emptying of toilets, porta-potties, and hand washing facilities
Res.B3c 1.8.4	Provide input into plans, procedures, and protocols to ensure individual/gross decontamination of persons and pets prior to admittance to shelters and other mass care facilities, medical and alternate care facilities, reception centers, animal shelters and other places as needed
Res.B3c 1.8.3.2	Conduct building/facility inspections in advance to identify food/sanitation capability and suitability of structures identified as mass care and shelter facilities (e.g., housing, shelters, feeding and care facilities)
Res.B3c 1.8.5	Develop a geo-coded database of all pre-designated mass care and shelter operations
Res.B3c 1.8.5.1	Update geo-coded database of all mass care and shelter operations
Res.B3c 1.8.6	In coordination with Mass Care and shelter operations, ensure that field communication plan includes environmental health personnel

Res.B3c 1.8.7	Develop Environmental Health Strike Team of appropriately trained personnel to ensure environmental health support to mass care and shelter response
Support for Solid Waste/Debris Disposal	
Res.B3c 1.9.1	Develop plans, procedures, programs, and guidance for environmental health support of waste management and debris removal
Res.B3c 1.9.2	Develop and provide technical inputs for waste management and debris removal guidelines
Res.B3c 1.9.2.1	Participate in the emergency response planning process for managing the type and quantities of waste generated by the incident and cleanup efforts
Res.B3c 1.9.2.2	Participate in the emergency response planning process for the safe removal and disposition of waste and debris
Res.B3c 1.9.3	Participate in the development of communications plans, procedures, and guidance for waste management and debris removal
Res.B3c 1.9.4	Develop a geo-coded database of all waste management facilities
Res.B3c 1.9.5	Develop Environmental Health Strike Team of appropriately trained personnel to ensure safety of solid waste/debris disposal
Support for Hazardous Waste Response	
Res.B3c 1.10.3	Participate in the communications planning process for hazardous materials incidents
Res.B3c 1.10.1	Provide technical assistance, consultation, and support in the development of plans for transporting hazardous materials
Res.B3c 1.10.1.1	Participate in the identification of facilities for the management of hazardous materials
Res.B3c 1.10.1.2	Participate in the determination of environmental health issues and concerns for transporting hazardous materials
Res.B3c 1.10.2	Participate in the development of a geo-coded database of hazardous materials facilities
Res.B3c 1.10.4	Develop Environmental Health Strike Team of appropriately trained personnel to ensure safety of hazardous materials management and decontamination

Preparedness Measures	**Metrics**
Drinking water safety is addressed in the comprehensive environmental health emergency response plan	Yes/No
Emergency plans to assess emergency water supply for impacted populations and key facilities are place to ensure: ▪ Two liters per person per day ▪ Bathing/washing/cooking 20 liters per person per day	Yes/No
Waste water disposal is addressed in the comprehensive environmental health emergency response plan	Yes/No
Emergency plans to assess emergency waste water disposal for impacted populations and key facilities are in place to ensure: ▪ One portable toilet per 25 people ▪ Gray water disposal	Yes/No
Food safety is addressed in the comprehensive environmental health emergency response plan	Yes/No

Environmental health aspects of waste management and debris removal are addressed in the comprehensive emergency response plan	Yes/No
Vector control is addressed in the comprehensive environmental health emergency response plan	Yes/No
Environmental health issues and concerns during hazardous materials incidents are addressed in the comprehensive emergency response plan	Yes/No
Safe solid waste disposal/debris management is addressed in the comprehensive environmental health emergency response plan	Yes/No
Safe re-entry and re-occupation is addressed in the comprehensive environmental health emergency response plan	Yes/No
Sanitation/hygiene/safety issues for mass care facilities are addressed in the comprehensive environmental health emergency response plan	Yes/No
Risk communication is addressed in the comprehensive environmental health emergency response plan and pre-event messages are developed	Yes/No
Priority structures have been identified and assessed	Yes/No
Percent of Safe Drinking Water Act (SDWA) drinking facilities included in geo-coded database	100%
Geo-coded database includes non- Safe Drinking Water Act (SDWA) systems	Yes/No
Geo-coded database includes community wastewater facilities	Yes/No
Geo-coded database includes food operations	Yes/No
Percent of waste water facilities (e.g., treatment plants lift stations, etc.) included in geo-coded database	100%
Geo-coded database includes mass care and shelter operations	Yes/No
Geo-coded database includes vector control	Yes/No
Geo-coded database includes educational and institutional facilities (including associated chemical, biological, and radiological hazards)	Yes/No
Geo-coded database includes hazardous materials facilities (including associated chemical, biological, and radiological hazards)	Yes/No
Percent of waste management facilities included in geo-coded database	100%
Geo-coded database includes environmental laboratories	Yes/No
Geo-coded database is distributed to State and local emergency operations	Yes/No
Geo-coded environmental samples database is capable of cataloging results by collection medium (such as water, drinking water, soil, air, animal vectors)	Yes/No
Frequency with which geo-coded database of potential hazards is updated	Every 12 months
Frequency with which baseline monitoring database is updated	Every 12 months
Frequency with which environmental vulnerability assessments are updated	Every 3 months
Frequency with which plans, procedures, programs, and guidance for environmental health support of waste management and debris removal are reviewed, exercised, and updated	Every 12 months

Contamination survey instrumentation is available	Yes/No
Comprehensive environmental health assessment is completed for pre-selected facilities and structures	Yes/No
Percent of States that include emergency vector control training in their public health pesticide certification program	100%
Percent of local vector control programs, both public and private, able to provide geo-coded data	50%
Frequency with which geo-coded vector control database is updated	Every month
Frequency with which vector control geo-coded database and updates are distributed to State and local emergency operations	Every month
Geo-coded environmental samples database is capable of cataloging results by collection medium (e.g., water, drinking water, soil, air, animal vectors)	Yes/No
Comprehensive environmental health assessment is completed for pre-selected facilities and structures	Yes/No

Activity: *Develop and Maintain Training and Exercise Programs*

Critical Tasks

Res.B3c 2.1	Develop training programs for providing environmental health support
Res.B3c 2.5	Identify and train personnel to develop and maintain geo-coded environmental health databases
Res.B3c 2.3	Ensure that environmental health emergency planning is fully integrated and exercised with the jurisdictional emergency plan
Res.B3c 2.2.10	Provide training to ensure environmental health support to hazardous materials responders
Res.B3c 2.2.2	Develop and conduct emergency response training relevant to environmental health in drinking water systems to field staff and managers of State/local drinking water programs and drinking water utilities
Res.B3c 2.2.4	Develop and conduct emergency response training relevant to all waste water systems including field staff and managers of State/local waste water programs, waste water utilities, public health, and emergency management
Res.B3c 2.2.5	Include emergency vector control response training to field staff and managers of State/local programs having responsibility for vector control in public health pesticide applicators' certification
Res.B3c 2.2.3	Develop and deliver environmental health emergency food safety response training to field staff and managers of food programs
Res.B3c 2.2.8	Develop and conduct emergency response training to field staff and managers of State/local programs having responsibility for safety/food/air/water/wastewater sanitation assessments of mass care operations
Res.B3c 2.2.8.1	Develop and conduct environmental health training to pre-designated managers, responders and volunteers of mass care operations
Res.B3c 2.2.10.1	Provide appropriate hazardous materials response training to field staff and managers of State/local programs having involvement in hazardous materials response
Res.B3c 2.2.3.1	Identify and train volunteers in emergency food safety
Res.B3c 2.2.3.2	Provide training to regulated entities within the food delivery system

Res.B3c 2.2.3.4	Develop materials and personnel to conduct just-in-time training for food protection
Res.B3c 2.2.2.1	Develop and conduct emergency response training relevant to all drinking water systems including field staff and managers of State/local drinking water programs, drinking water utilities, public health, and emergency management
Res.B3c 2.4	Develop exercise programs for providing environmental health support

Preparedness Measures	**Metric**
Frequency with which emergency response training is provided to field staff and managers of State and local environmental health programs	Every 12 months
Training addresses the range of environmental health issues	Yes/No
Training has been provided to ensure environmental health support to hazardous materials responders	Yes/No
Training on food safety is provided to responders and volunteers	Yes/No
Training on environmental health is provided to pre-designated managers, responders, and volunteers of mass-care operations	Yes/No
Percent of solid waste and debris and disposal workers adequately trained and protected (PPE)	100%

Performance Tasks and Measures/Metrics

Activity: ***Direct Environmental Health Operations (Command and Control)*** **Definition: In response to notification of environmental hazards, provide overall mobilization, management of assessment, and coordination and support of Environmental Health activities through demobilization**	
Critical Tasks	
Res.B3c 3.1	Coordinate the environmental health function into response activities
Res.B3c 3.1.1	Develop an incident-specific plan to coordinate the various elements of environmental health among Federal, State, and local response
Res.B3c 3.1.3	Determine and ensure the coordination for the analysis and database management of environmental samples, including those for which other agencies are responsible for the interpretation of results and risk communication
Res.B3c 3.1.4	Provide environmental health support and coordination for Crisis and Emergency Risk Communication
Res.B3c 3.1.4.1	Develop Crisis and Emergency Risk Communication information for dissemination through the Joint Information Center to media, public, partners and stakeholders
Res.B3c 3.1.4.2	Identify and communicate environmental health risk issues to the affected population
Res.Bc3 3.1.5	Provide input on forecasting and planning aspects as part of the Incident Command System (ICS) for environmental health needs in the subsequent operation period
Res.Bc3 3.2	Provide support and coordinate environmental health resources to address potable water supply issues
Res.Bc3 3.3	Provide support and coordinate environmental health resources to address waste water issues
Res.Bc3 3.4	Provide support and coordinate environmental health resources to address mass care issues

Res.Bc3 3.5	Provide support and coordinate environmental health resources to address debris and waste management issues
Res.Bc3 3.6	Provide support and coordinate environmental health resources to address responder safety and health (link to capability)
Res.Bc3 3.7	Provide support and coordinate environmental health resources to address hazardous materials (CBRNE) issues
Res.Bc3 3.8	Provide support and coordinate environmental health resources to address vector control response issues
Res.Bc3 3.10	Provide support and coordinate environmental health resources to address medical care issues to include exposure assessment, toxicological consultation, dose assessment, secondary exposure, medical waste management
Res.Bc3 3.11	Provide support and coordinate environmental health resources to address food and agricultural safety and defense
Res.Bc3 3.12	Provide support and coordinate environmental health resources to address animal-health emergency support issues
Res.Bc3 3.13	Provide support and coordinate environmental health resources to address food supply issues
Res.Bc3 3.14	Provide support and coordinate environmental health resources to address safe re-entry and re-occupancy of community, homes, and facilities
Res.Bc3 3.15	Provide support and coordinate environmental health resources to address outdoor environmental issues

Performance Measures	**Metric**
Time in which technical information, support and consultation is provided for the creation of Crisis and Emergency Risk Communication messages	Within 60 minutes from request
Percent of time that environmental health technical information, support and coordination is provided in response to a request or an identified need	100%
Percent of time that environmental health resources are deployed in response to a request or an identified need	100%
Time in which environmental health input is provided for the forecasting and planning aspects of the Incident Action Plan (IAP)	Within 60 minutes from request

Activity: ***Activate Environment Health***

Definition: Identify required experts and mobilizes personnel to begin environmental health assessments and response activities

Critical Tasks	
Res.B3c 4.1	Identify environmental health specialties required to assess and support response
Res.B3c 4.2	Mobilize environmental health personnel
Res.B3c 4.3	Mobilize environment health resources

Performance Measures	**Metric**

Appropriate environmental health specialties have been identified or put on stand-by	Yes/No
Time in which environmental health personnel are mobilized	Within 24 hours from incident

Activity: *Ensure Safety of Potable Water Supplies*

Definition: Conduct health assessments and take actions necessary to ensure that the public has sufficient access to safe potable water for drinking, washing, and ice

Critical Tasks	
Res.B3c 5.1	Provide initial damage assessment of drinking water infrastructure
Res.B3c 5.2	Request needs for equipment and personnel through emergency operations, Emergency Management Assistance Compact, federal assistance, or mutual aid agreements
Res.B3c 5.2.1	Deploy personnel and equipment to repair, conduct assessments, provide technical assistance and conduct monitoring of drinking water supplies and systems
Res.B3c 5.1.1	Develop prioritization list of activities to provide potable water to affected populations and key facilities
Res.B3c 5.1.2	Conduct ongoing and follow-up assessment of systems to include facility assessments, equipment needs assessments, water sampling, and laboratory analysis and personnel needs
Res.B3c 5.3	Conduct ongoing repairs, technical assistance, and monitoring for all water systems
Res.B3c 5.4	Disseminate water communication messages to appropriate groups considering population and cultural differences

Performance Measures	Metric
Time in which initial assessments for water system needs for affected populations and priority facilities are conducted	Within 12 hours from establishment of communications
Time in which all public water facilities are assessed	Within 14 days from incident
Percent of time that State and local drinking water regulations are met for drinking water at point of use or entry into the distribution system to include the following systems: (1) Public Water Utility; (2) Alternative Water Supplies (Hauled Water, Bulk Water, Bottled Water); (3) Unregulated systems (individual wells); (4) Temporary or mobile treatment systems (ROPU, Portable onsite treatment)	100%

Activity: *Ensure Safety of Food Supplies*

Definition: Conduct health assessments and take actions necessary to ensure that the food supply meets the health and safety codes of local jurisdiction

Critical Tasks	
Res.B3c 6.1	Identify high risk foods, food supplies and systems, facilities, and transport mechanism (temporary providers) that may pose hygiene or safety issues because of the event
Res.B3c 6.2	Conduct initial assessments of food facilities using Emergency Guidelines and Operation Criteria or applicable code
Res.B3c 6.2.1	Conduct field surveys to assess damage to food facilities

Res.B3c 6.2.2	Assess safety and integrity of food supply delivery and transport mechanisms
Res.B3c 6.2.3	Ensure that the safety and integrity of food supply and delivery is considered when conducting community infrastructure assessments
Res.B3c 6.2.4	Record and report assessments through automated systems (e.g., scanned forms or handhelds) to develop reports for follow-ups and tracking of common and related issues
Res.B3c 6.3	Determine safety of response activities
Res.B3c 6.4	Establish priorities for response activities
Res.B3c 6.5	Activate COOP/COG plans
Res.B3c 6.6	Address compromised safety and integrity issues of the food supply an delivery system
Res.B3c 6.7.1	Provide just-in-time training for volunteers
Res.B3c 6.7	Activate volunteers
Res.B3c 6.8	Ensure proper food handling in non-traditional operations activated during emergency response, and ensure best practices
Res.B3c 6.8.1	Ensure proper food salvage of at risk foods and beverages or potentially exposed food products
Res.B3c 6.8.2	Recommend the closing of facilities or operations when appropriate and address non-compliance with recommendations
Res.B3c 6.9	Provide Crisis and Emergency Risk Communication to public entities on topics such as the safe disposal of damaged or contaminated food in coordination with Emergency Public Information and Warning
Res.B3c 6.9.1	Ensure Crisis and Emergency Risk Communication to regulated entities
Res.B3c 6.10	Conduct environmental investigations of disease outbreaks possibly related to food-borne exposure supported by information systems that comply with the Public Health Information Network Functional Area Outbreak Management
Res.B3c 6.10.1	Clear facilities or operations for resumption of services when appropriate

Performance Measures	**Metric**
Time in which assessment of priority food facilities is initiated using emergency guidelines and operation criteria applicable to the affected area	Within 24 hours from incident
Food safety personnel participate in infrastructure assessment	Yes/No

Activity: *Ensure Safety of Wastewater Management*

Definition: Conduct health assessments and take actions necessary to ensure that waste water is properly managed and disposed

Critical Tasks	
Res.B3c 7.1	Provide initial damage assessment of waste water collection, treatment and disposal facilities
Res.B3c 7.2	Request needed equipment and personnel through emergency operations, Emergency Management Assistance Compact, Federal assistance, or mutual aid agreements
Res.B3c 7.2.1	Deploy personnel and equipment to repair, conduct assessments, provide technical assistance and conduct monitoring of waste water systems

Res.B3c 7.1.1	Develop prioritization list of activities to provide waste water collection, treatment and disposal facilities to affected populations and priority facilities (e.g., shelters, hospitals, etc.)
Res.B3c 7.1.2	Conduct ongoing and follow-up assessment of systems to include facility assessments, equipment needs assessments, waste water sampling, and laboratory analysis and personnel needs
Res.B3c 7.3	Conduct ongoing repairs, technical assistance, and monitoring for all waste water systems
Res.B3c 7.4	Disseminate waste water communication messages to appropriate groups considering population and cultural differences

Performance Measures	**Metric**
Time in which initial assessments are conducted for waste water system needs for affected populations and priority facilities (e.g., shelters, hospitals, etc.)	Within 12 hours from establishment of communications
Time in which all public waste water facilities are assessed	Within 14 days from incident
Percent of time that State and local waste water regulations are met for waste water to include the following systems: (1) Public Waste Water Utility; (2) Alternative Waste Water (portable toilets, temporary lagoons, waste hauling); (3) Unregulated systems (individual septic tanks); (4) Land application	100%
Percent of affected populations provided with adequate temporary sewage disposal alternatives (1 portable toilet per 20 persons or access to pit latrines provided to all personnel according to The Sphere Project Minimum Standards in Disaster Response guidelines)	100%

Activity: *Provide Vector Surveillance*

Definition: After vector is identified, mobilize and equip control personnel with appropriate personal protective equipment and direct control strategies and application of vector control substances

Critical Tasks	
Res.B3c 8.1	Provide vector control
Res.B3c 8.1.1	Assist in the coordination of vector control response
Res.B3c 8.2	Establish a vector control technical expertise team for surveillance and monitoring of animal infections until population densities and infection rates return to pre-event levels
Res.B3c 8.3	Conduct assessment of insect, animal and rodent vectors to include population densities, infectivity rates, and human risk potential
Res.B3c 8.4	Coordinate emergency vector control measures to the extent needed to supplement local capacity and reduce risk to pre-event levels
Res.B3c 8.3.1	Monitor vectors
Res.B3c 8.4.1	Develop plan to work with local vector control to assist while they rebuild capabilities

Performance Measures	**Metric**
Time in which initial assessment of insect, animal, and rodent vectors is completed	Within 72 hours from incident confirmation

Percent of vectors mitigated	85%
Time in which animal control measures are initiated	Within 96 hours from incident
Frequency with which database with areas treated for vector control is updated	Every 48 hours
Frequency with which geo-coded database is updated with all locations assessed or treated for vectors during incident	Every 48 hours

Activity: *Ensure Safety of Building Environments*

Definition: Conduct health assessments and take actions necessary to ensure that buildings can be safety re-entered

Critical Tasks	
Res.B3c 9.1	Provide environmental health support on assessing buildings for re-entry
Res.B3c 9.1.1	Assist assessments to collect and analyze data needed to determine safe re-entry and re-occupancy of community, homes and facilities
Res.B3c 9.2	Coordinate with NIOSH/OSHA/Hazmat to identify facilities that are safe for re-entry
Res.B3c 9.1.2	Assess community structures and issue recommendations for safe operations
Res.B3c 9.3	Provide geo-coded status report of community, homes, facilities, and structures identified as safe or unsafe to re-enter and re-occupy
Res.B3c 9.1.3	Assess rehabilitation of community, homes, facilities, and structures
Res.B3c 9.4	Monitor re-entry operations

Performance Measures	Metric
Percent of affected communities, homes, educational, institutional and health care facilities monitored in accordance with established evaluation processes and criteria	100%
Frequency with which data is analyzed during the incident to determine status of safe re-entry and re-occupancy of community, homes, and facilities	Every 12 hours
Time in which a geo-coded system is implemented to determine status of rehabilitation efforts and health and safety issues associated with reentry and re-occupancy	Within 72 hours from the incident
Documentation is maintained for assessments conducted	Yes/No
Frequency with which geo-coded status report of community, homes and facilities identified as safe or unsafe to re-enter and re-occupy are updated	Every 12 hours

Activity: *Ensure Safety of Outdoor Environments*

Definition: Conduct health assessments and take actions necessary to ensure that areas can be safety re-entered

Critical Tasks	
Res.B3c 10.1	Design and conduct appropriate environmental sampling programs
Res.B3c 10.2	Geo-code all environmental samples and make them publicly available in a timely manner where appropriate

Res.B3c 10.1.1	Provide health impact assessment of sampling results from various environmental sources to include: water, air, surfaces and soil via comparison to baseline results and/or preexisting standards and make them publicly available in a timely manner where appropriate
Res.B3c 10.3	Recommend and/or lead remediation efforts for individual property owners and communities
Res.B3c 10.4	Establish a sampling plan relevant to the event

Performance Measures	Metric
Time in which the sampling plan is developed	Within 24 hours from incident
Time in which the sampling plan is initiated	Within 72 hours from incident
Time in which the initial findings and response recommendations are summarized and disseminated	Within 96 hours from incident
Time in which a full characterization and recommendations based upon the initial assessments are developed	Within 14 days from incident

Activity: ***Provide Environmental Health Support to Mass Care Response***

Definition: Conduct health assessments and take actions necessary to ensure that mass care facilities provide safe food, water, sanitation, and environment

Critical Tasks	
Res.B3c 11.1	Coordinate environmental health assessments of mass care and shelter operations
Res.B3c 11.1.1	Monitor the environmental health impact of changing population levels and circumstances in mass care and shelter operations
Res.B3c 11.2	Conduct initial comprehensive environmental assessments (safety/food/water/wastewater sanitation) of mass care and shelter operations to ensure compliance with guidelines
Res.B3c 11.2.2	Assess safety of potable water at mass care facilities-shelters, feeding centers, and sources of ice
Res.B3c 11.2.3	Assess safety of food supply at mass care facilities-shelters, feeding centers, food/ice distribution centers
Res.B3c 11.2.4	Assess safety of wastewater management (including toilets, on-site systems and hand washing facilities) at mass care facilities
Res.B3c 11.3	Provide vector control to mass care and shelter facilities
Res.B3c 11.4	Assess building safety for mass care and shelter facilities
Res.B3c 11.5	Provide environmental health support to sold waste/debris removal at mass care and shelter facilities
Res.B3c 11.6	Conduct follow-up environmental health assessments (safety/food/air/water/wastewater sanitation) of mass care operations

Performance Measures	Metric
Time in which a sanitation assessment of drinking water at mass care facilities, shelters, and feeding centers is completed to ensure the water quality meets EPA standards	Within 48 hours from onset of shelter operation
Time in which comprehensive environmental assessments (water, air, sanitation, food, and safety) at mass care facilities, shelters, feeding centers, and food/ice distribution centers are	Within 48 hours from onset of shelter

completed to ensure: (1) Safe water – 7.7-15 liters/day; (2) Cot spacing (overcrowding)– 3.5 m2; (3) Minimum 1 toilet/20 persons, etc.	operation
Frequency with which geo-coded database is updated with all mass care operations	Every 12 hours

Activity: *Provide Environmental Health Support to Solid Waste/Debris Removal*

Definition: Conduct health assessments and take actions necessary to ensure that solid waste management and debris removal activities are conducted in a manner that protects public and environmental safety

Critical Tasks	
Res.B3c 12.1	Provide environmental health assessment of waste management and debris removal practices
Res.B3c 12.1.1	Provide environmental health assessment of waste and debris in impacted areas
Res.B3c 12.2	Monitor waste management and debris removal operations
Res.B3c 12.2.1	Ensure the appropriate collection and management of waste and debris
Res.B3c 12.3	Provide technical assistance and consultation for the environmental health aspects of waste management and debris removal

Performance Measures	Metric
Time in which assessment of waste management and debris removal operations for environmental health concerns is initiated	Within 24 hours from incident
Time in which monitoring of waste management and debris removal operations and practices is initiated	Within 24 hours from incident
Frequency with which geo-coded database is reviewed and updated after the collection and disposal process begins	Every 24 hours

Activity: *Provide Environmental Health Support to Hazardous Materials Management/Decontamination*

Definition: Conduct health assessments and take actions necessary to ensure that hazardous materials management and decontamination activities are conducted in a manner that protects public and environmental safety

Critical Tasks	
Res.B3c 13.1	Participate in response to hazardous materials incidents by providing environmental health technical assistance, consultation, and support
Res.B3c 13.2	Ensure that initial and follow-up assessments of environmental media impacted by hazardous materials incidents are conducted
Res.B3c 13.3	Provide technical assistance, consultation, and support in the investigation of hazardous materials incident
Res.B3c 13.4	Provide geo-coded locations and results for environmental samples following hazardous materials incidents
Res.B3c 13.3.1	Provide technical assistance, consultation, and support during damage assessments following hazardous materials incidents

Res.B3c 13.2.2	Assist in conducting assessments to identify environmental health hazards, threats, vulnerabilities and risks to facilities involved in the production, storage or distribution of hazardous materials
Res.B3c 13.5	Provide environmental health technical assistance, consultation, and support and coordination in the management of environmental contaminants associated with hazardous materials incidents
Res.B3c 13.6	Provide technical assistance, consultation, and support in establishing and monitoring access restrictions/quarantine to contaminated areas during hazardous materials incidents
Res.B3c 13.7	Provide technical assistance, consultation, and support regarding decontamination procedures
Res.B3c 13.8	Provide technical assistance, consultation, and support for plume modeling and evacuation
Res.B3c 13.7.1	Provide technical assistance, consultation, and support for decontamination operations

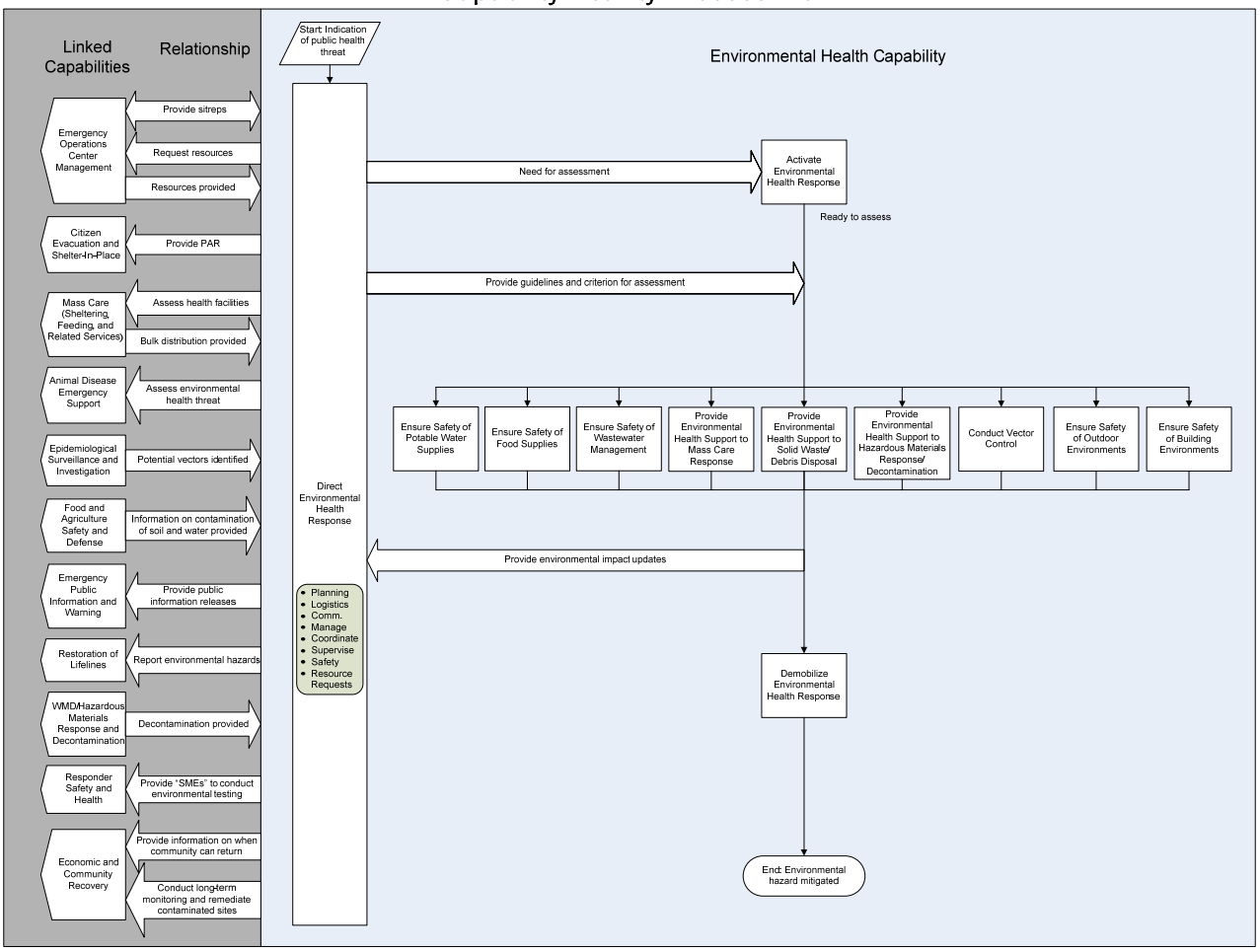
Performance Measures	Metric
Time in which technical assistance, consultation, and support to hazardous materials responders is initiated	Within 24 hours from incident
Time in which technical assistance, consultation, and support for damage assessments during hazardous materials incidents is initiated	Within 48 hours from incident

Linked Capabilities

Linked Capability	Relationship
Emergency Operations Center Management	Environmental Health provides information to EOC Management for situational awareness about environmental hazards that require response (clean-up, evacuation, etc) and/or that impact responder health and safety. Environmental Health makes recommendations on mitigation to decision makers in the EOC. Environmental Health also requests resources from the logistics section within the EOC.
Citizen Evacuation and Shelter-In-Place	Environmental Health provides protective action recommendations to Citizen Evacuation and Shelter-In-Place
Mass Care (Sheltering, Feeding, and Related Services)	Environmental Health provides oversight to Mass Care (Sheltering, Feeding, and Related Services) operations to ensure safe food, clean air and water, and necessary waste disposal and other sanitation requirements.
Animal Disease Emergency Support	Environmental Health provides an environmental health threat assessment to Animal Disease Emergency Support.
Epidemiological Surveillance and Investigation	Epidemiological Surveillance and Investigation identifies potential vectors to Environmental Health. Environmental Health findings inform epidemiological investigations and targeted surveillance.
Food and Agriculture Safety and Defense	Environmental Health provides information on potential contaminated soil and water to be monitored. Environmental Health tasks related to eradication of crop diseases/pests, integrity of the food producing industry, and removal and disposal of potentially compromised food are listed in Food and Agriculture Safety and Defense
Emergency Public Information and Warning	Environmental Health provides information and recommends protection and mitigation strategies to be included in public releases to Emergency Public Information and Warning.
Restoration of Lifelines	Environmental Health provides information on environmental hazards to Restoration of Lifelines.

Linked Capability	Relationship
WMD and Hazardous Materials Response and Decontamination	Environmental Health cooperates with WMD and Hazardous Materials Response and Decontamination on when and how to perform decontamination, after appropriate samples have been taken and returned for lab analysis.
Responder Safety and Health	Environmental Health comprises many of the "SMEs" referenced in Responder Safety and Health who will do environmental testing to inform what types of PPE are needed and what hazards exist for responders entering an environment.
Economic and Community Recovery	Environmental Health provides information regarding safe return to previously dangerous areas. Environmental Health also conducts long-term monitoring and remediation of contaminated sites.

Capability Activity Process Flow



Resource Element Description

Resource Elements	Components and Description
Environmental Health Task Force (General)	A Federal, State, Regional or Local task force comprising personnel with expertise in environmental health functional elements (e.g., water, food, debris and waste management, vector control, air) trained and equipped to address environmental health issues. Task force is capable of collecting general indoor and outdoor samples, conducting rapid needs assessments, coordinate environmental health risk-based advice to the emergency response community. Task force will identify and address environmental health issues of concern to the impacted populations. Support the public health planning and forecasting team. The size of the task force may be scaled for the particular response. Local officials are responsible for identifying all personnel even though the task force is composed of personnel from all levels of government. Personnel: 6 members, 1 lead
Environmental Health Strike Team (Radiological)	A team trained and equipped to conduct environmental health assessments; address environmental health issues; compile, geo-code, and interpret data; provide public health advice on radiological environmental health issues; and consult with environmental health subject matter expert(s) as needed. Team includes a health physicist to advise on a wide range of radiation exposure and relevant actual or potential health effect issues. Team includes trained radiological monitoring personnel to monitor the exposed population for radiation contamination and assist with decontamination. Personnel: 6 members, 1 lead; includes health physicist and trained radiological monitoring personnel
Environmental Health Strike Team (Food)	A team trained and equipped to conduct environmental health assessments; address environmental health issues; compile, geo-code, and interpret data; provide public health advice on food environmental health issues; and consult with environmental health subject matter expert(s) as needed. Local officials are responsible for identifying all personnel even though the strike team is composed of personnel from all levels of government. Personnel: 6 members, 1 lead
Environmental Health Strike Team (Potable Water)	A team trained and equipped to conduct environmental health assessments; address environmental health issues; compile, geo-code, and interpret data; provide public health advice on potable water environmental health issues; and consult with environmental health subject matter expert(s) as needed. Personnel: 14 members, 1 lead;
Environmental Health Strike Team (Potable Water) – Technical Assistance	Provides technical assistance and message to private homeowners with wells. Personnel: 6 members, 1 lead
Environmental Health Strike Team (Debris and Waste Management)	A team trained and equipped to conduct environmental health assessments; address environmental health issues; compile, geo-code, and interpret data; provide public health advice on debris and waste management environmental health issues; and consult with environmental health subject matter expert(s) as needed. Personnel: 6 members, 1 lead;
Environmental Health Strike Team	A team trained and equipped to conduct environmental health assessments;

Resource Elements	Components and Description
(Vector Control)	address environmental health issues; compile, geo-code, and interpret data; provide public health advice on vector control environmental health issues; and consult with environmental health subject matter expert(s) as needed. Team has experience and training in trapping, identification and control measures and is knowledge of notifications that need to be done before control can commence (e.g., beekeepers, no spray registries etc.). Local officials are responsible for identifying all personnel even though the strike team is composed of personnel from all levels of government. Personnel: 6 members, 1 lead;
Environmental Health Strike Team (Hazardous Materials)	
Environmental Health Strike Team (Air) – outdoor	A team trained and equipped to conduct environmental health assessments; address environmental health issues; compile, geo-code, and interpret data; provide public health advice on outdoor air environmental health issues; and consult with environmental health subject matter expert(s) as needed. Personnel: 8 members, 1 lead
Environmental Health Strike Team (Air) – indoor air	A team trained and equipped to conduct environmental health assessments; address environmental health issues; compile, geo-code, and interpret data; provide public health advice on indoor air environmental health issues; and consult with environmental health subject matter expert(s) as needed. Personnel: 6 members, 1 lead
Environmental Health Strike Team (Wastewater)	A team trained and equipped to conduct environmental health assessments; address environmental health issues; compile, geo-code, and interpret data; provide public health advice on wastewater environmental health issues; and consult with environmental health subject matter expert(s) as needed. Personnel: 14 members, 1 lead;
Environmental Health Strike Team (Shelter)	A team trained and equipped to conduct environmental health assessments; address environmental health issues; compile, geo-code, and interpret data; provide public health advice on mass shelter environmental health issues; and consult with environmental health subject matter expert(s) as needed. Local officials are responsible for identifying all personnel even though the strike team is composed of personnel from all levels of government. Personnel: 6 members, 1 lead;
Environmental Health Lead Coordinator	An environmental health professional trained and equipped to assume the environmental command component of incident response, or in applicable situations, assume incident command responsibilities. The coordinator will also supervise the activities of the environmental health task force and request strike team assets as needed. Local officials are responsible for identifying the coordinator even though the coordinator may be Federal, State, or local.
Environmental Health Liaison	An environmental health professional trained and equipped to represent environmental health concerns within the incident command structure.

Planning Assumptions

- This capability applies to a wide range of incidents and emergencies including accidental or deliberate disease outbreaks, natural disasters, nuclear and conventional events. Specific assumptions on consequences are based on the Natural Disaster – Major Earthquake Scenario.

- The capacity estimates and staffing formulas used in this capability are based on broad assumptions that may or may not reflect conditions in an actual emergency.
- Members of response organizations are on a reserve/volunteer call-up status. They will require some time to assemble and must be relieved after some reasonable amount of time.
- A progress rate of at least 10% improvement is expected in deriving capability requirements.
- Power restoration will not occur immediate but will begin to increase after 2 weeks.
- Funding and resources are abundantly available.

Potable Water:

- Environmental Health Strike Team – Potable Water – Team consist of 15 members, 1 Team Lead and 14 members, 14 members make up 7 Units (2 person per Unit).
- All potable water systems initially inoperable.
- Team size and make up will vary given the complexity of operations assessed.
- Mobile laboratories will be requested to match the number of samples taken. Note: The Laboratory Target Capability function should contain this requirement.
- Primary function of Teams is to assess damage, make recommendations, provide technical assistance and maintain the safety of potable water.
- Initial Damage Assessments: 49 large regulated water supply systems (prioritized from large municipal to smaller systems); strike team is 7 Units of 2 people, each Unit can do 1 assessments per day; each strike team can do 7 systems per day; Need 1 team to accomplish all assessments in 1 week.
- Initial Damage Assessments: 1,960 smaller regulated water supply systems; strike team is 7 Units of 2 people, each Unit can do 5 assessments per day; each strike team can do 35 per day; Need 4 teams to complete all assessments in 2 weeks.
- Temporary bulk water distribution site assessments: 504 distribution sites, strike team is 7 Units of 2 people; each Unit can do 6 site assessments per day; each strike team can do 42 sites per day; Need 2 teams to accomplish all assessments in 2 days.
- Individual homeowner wells will not be an initial priority but will be require technical assistance. Assistance needs will increase water teams after 2 weeks when broader community power is restored. One small team of SMEs will be needed to develop public service messages and provide technical assistance. 7 person team consisting of 1 team lead and 6 team members.
- Mobile water treatment unit assessments will be needed for 294 priority facilities, strike team is 7 Units of 2 people, each Unit can do 6 site assessments per day; each strike team can do 42 sites per day; Need 2 teams to accomplish all assessments in 2 days. Sites will need to be evaluated before beginning operation therefore immediate assessments are required. Need 1 team to complete all assessments over 1 week.

Waste Water:

- Environmental Health Strike Team – Waste Water – Team consist of 15 members, 1 Team Lead and 14 members, 14 members make up 7 Units (2 person per Unit).
- All waste water systems initially inoperable.
- Team size and make up will vary given the complexity of operations assessed.
- Mobile laboratories will be requested to match the number of samples taken. Note: The Laboratory Target Capability function should contain this requirement.
- 49 large regulated waste water systems , strike team is 7 Units of 2 people, each Unit can do 1 assessments per day; each strike team can do 7 per day; Need 1 teams to accomplish all assessments in 1 week.
- 1,960 smaller regulated waste water supply systems. 7 Units of 2 people, each Unit can do 5 site assessments per day; each strike team can do 35 sites per day; Need 2 teams to accomplish all assessments in 2 weeks.

- 588 temporary lagoons and holding facilities assessed , 7 Units of 2 people, each Unit can do 6 site assessments per day; each strike team can do 42 sites per day; Need 2 teams to accomplish all assessments in 2 weeks.
- 196 land application sites are established and assessed, strike team is 7 Units of 2 people, each Unit can do 4 site assessments per day; each strike team can do 28 sites per day; Need 1 teams to accomplish all assessments in 1 week.

Food

- 12 hour operational period (work shift).
- 1.5 million meals per day needed.
- Food for shelters will be prepared off site in 45 centralized kitchen facilities/commissary, 3 strike teams (consisting of 6 people) doing 45 inspections a day.
- 575 field kitchens and 1,875 mobile kitchens. These will require 30 strike teams (consisting of six people each) at a frequency of every other day for a total of 7560 inspections (I hour inspection) to be completed in one week.
- Restaurants will not be allowed to reopen for an extended period of time (2 weeks).
- Assume 10,000 preexisting regulated food facilities (including restaurants) (per 1 million people) . There will be a need for eh strike team (food) to perform initial assessment and/or ensure closure of these facilities. 40 EH strike teams (consisting of 6 people) can do 10,080 inspections (1 hour inspection time) in 2 weeks.
- In order to maintain span of control of teams, 12 team leaders and two lead coordinators would be need to be identified.

Shelters

- Shelters will mostly be of temporary facilities (tent cities) assuming previously identified structures have been damaged due to earthquake, located close to affected population.
- 1,152 shelters, each capable of caring for 250 people – the average population per shelter will rise with a catastrophic event (estimated 1000 residents per shelter vs 250) because fewer facilities (400 shelters) will be available than the preplanning estimation. It is assumed that shelters are located in Host communities and that each shelter has existing basic sanitation (water/wastewater) and will not require environmental support for water/wastewater.
- A team of 6 emergency health strike team (shelter) members can assess 2 shelters in one day. Frequency of inspections should be every other day.
- Planning for needs of EH strike teams (shelter) is based on first 30 days. There will be continued need for additional teams for displaced populations in FEMA trailer parks, ongoing shelters, etc.
- 100 of the 400 shelters are special needs. Companion animal needs should be addressed.
- In order to maintain span of control of teams, 100 team leaders and ~16 lead coordinators would be need to be identified
- After the acute response period, the need for temporary living quarters (FEMA temporary housing) will require further environmental health services
- Some previously identified structures will not be able to be shelters due to actual or potential damage.
- Timely logistical support to shelters and feeding sites will be essential and required for a sustained period of time.
- An immediate and sustained need for bulk distribution of relief supplies will be required. Requirements will depend on the nature of the human needs produced by the incident.
- Populations likely to require mass care services include the following: 1) Primary victims (with damaged or destroyed homes) 2) Secondary and tertiary victims (denied access to homes) 3) Transients (visitors and travelers within the affected area) 4) Emergency workers (seeking feeding support, respite shelter(s), and lodging).

Vector Surveillance:

- 6 counties affected
- Prior indication of West Nile in the area
- 3 of 6 counties have pre-existing mosquito and rodent control programs, currently non-operational.
- Vector surveillance: Senior public health entomologist responsible for receiving surveillance data and updating surveillance daily; 1 five-person field team per county for combination mosquito and rodent surveillance, consisting of 2 medical entomologists, 1 rodent control specialist and 2 general field technicians with equipment to collect and identify mosquitoes and rodents and with access to back-up labs at state or federal levels to test mosquitoes for West Nile and other arboviruses; each field team needs 2 vehicles (SUV or pick-up) for access to sampling sites in field and transport of samples back to labs at least twice a day; for access to remote sampling sites, one ATV per pick-up may be needed.
- Shelter vector surveillance: One public health entomologist will liaison with the generalist task forces stationed at each shelter to advise on vector surveillance and receive surveillance data
- Vector control: Recommendations are made to Incident Command for specific requirements to mitigate any vector issues; control measures will be contracted out to an operational unit with that capability

Indoor and Outdoor Air Quality:

- While 1,000,000 buildings will be damaged, re-entry will only be attempted at 1% of the buildings within the first month
- Outdoor air quality monitoring: Four two-person units per county equipped with appropriate PPE and mobile air monitors for all outdoor air quality concerns (including, but not limited to PM, VOCs, PAHs, asbestos, and mold spores). Units will consist of 2 environmental health scientists with training in outdoor air quality monitoring. Units will have the capability to respond to acute point source events as well as general air quality concerns over the affected region. Units will have access to back-up labs at state or federal levels to process samples. Counties will be surveyed daily or every other day throughout the first 30-60 days, and then regularly (weekly or biweekly) throughout the recovery period to monitor for long-term events or problems. Where roads are passable, the EPA's TAGA can be used for supplemental large-scale air monitoring efforts.
- Indoor air quality monitoring: Two three-person Units per county equipped with appropriate PPE and indoor air monitors to perform air quality assessments and make recommendations for re-entry into 1,000 damaged buildings within the first month. Units will consist of three environmental health scientists with training in indoor air monitoring. Units will have access to back-up labs at state or federal levels to process samples.
- Air quality modeling and assessments: Two environmental health risk assessors with experience in air pollutant risk assessment will receive data as compiled by the air monitoring strike teams and make recommendations on exposure guidelines and health risks presented by indoor and outdoor air quality. For circumstances where air contamination must be modeled to forecast future hazards and vulnerabilities (e.g., the potential distribution of a plume), a team of three mathematical modelers with the appropriate training and modeling software should be available for this forecasting function

Building Environments (Utilizes EH General Task Force):

- Assessments occur after building is deemed structurally sound
- Performed by the EH General Task Force, a multi-disciplinary team composed of seven environmental health scientists with a variety of specialties including but not limited to, food safety, industrial hygiene, engineering, environmental health and safety, environmental health specialist, sanitarian, etc. One member of the Task Force is designated a team leader. The six working personnel of the Task Force will be subdivided into three teams of two that will conduct field assessments.

- The Task Force assists in the assessment of building environments, e.g., educational facilities, hospitals, institutions, and homes, for the presence of critical components affecting health, as appropriate to each structure**.** These components include sanitation, wastewater conveyance, vector control, indoor air quality, potable water, absence of hazards, etc.
- Residences, schools (500 students), hospitals (500 beds), institutions (100 person occupancy, e.g., jails) are representative buildings that vary in complexity of operation.
- Each team of two should be able to assess 16 homes per day; 2 schools per day; 1 hospital per day; or 3 institutions per day. These assessments will scale up by a factor of three for the whole Task Force.
- This team also possesses the multi-disciplinary ability to assist in the assessment of buildings for emergency sheltering needs, and should be able to be used in this capacity.
- Assume that of the 1,000,000 buildings damaged, only 1% will be re-occupied within the first 30 days. The Task Force will assess 1,000 buildings in this time frame, of which 10 are jails, 5 hospitals, 4 schools and the rest are homes (981).

Planning Factors from an In-Depth Analysis of a Scenario with Significant Demand for the Capability (Natural Disaster – Major Earthquake Scenario)

Resource Organization	Estimated Capacity	Scenario Requirement Values	Quantity of Resources Needed
Environmental Health Task Force (General)	Task force can assess: • Homes: 48 per day • Schools: 6 per day • Hospitals: 3 per day • Institutions: 9 per day	In 30 days, need to assess: • 10 institutions • 5 hospitals • 4 schools • 981 homes	1 Task Force
Environmental Health Strike Team (Food)	Strike Team can inspect: • 45 centralized kitchen facilities/commissary per daily • 7,560 field and mobile kitchens per week • 10,080 regulated facilities in two weeks	Need to inspect: • 45 centralized kitchen facilities/commissary • 575 Field kitchens and 1,875 mobile kitchens every 48 hours • 10,000 preexisting regulated facilities (per one million people)	3 teams for centralized kitchens 30 teams for field kitchens 40 teams for regulated facilities
Environmental Health Strike Team (Potable Water)	Strike Team can inspect: • 7 large regulated water supply systems per day per team • 35 small regulated water supply systems per day per team • 42 mobile water treatment units per day per team • 42 temporary bulk water distribution sites per day per team	Need to inspect: • 49 large regulated water supply systems in 1 week • 1,960 smaller regulated water supply systems in 2 weeks • 294 Mobile water treatment units assessed as opened over 1week • 504 temporary bulk water distribution sites within 2 days	1 team for large systems 4 teams for smaller systems 1 team for mobile units 2 teams for bulk sites

Resource Organization	Estimated Capacity	Scenario Requirement Values	Quantity of Resources Needed
Environmental Health Strike Team (Potable Water) – Technical Assistance	Team of 7 provides private homeowners with wells with technical assistance and messaging,	Provides messaging and technical assistance over a 2 week period	1 team
Environmental Health Strike Team (Debris and Waste Management)	Team can assess 45 square miles per day for general waste and debris assessment	900 square miles to be assessed within 10 days	2 teams
Environmental Health Strike Team (Vector Control)	One county can be surveyed throughout a 30 day period	Six counties surveyed throughout a 30 day period	6 teams
Environmental Health Strike Team (Hazardous Materials)	Strike Team can inspect: • 45 hazardous materials facilities per day, and • 3 hazardous materials release incident per team	Need to inspect: • 30,000 hazardous materials facilities within 20 days, and • 50 hazardous materials release incidents at peak	34 teams 17 teams
Environmental Health Strike Team (Air) – outdoor air	One-fourth of the geographic area of a county can be surveyed throughout a 30 day period for outdoor air quality by a unit of 2 members	Six counties surveyed throughout a 30-day period	6 teams of 8 members (4 units) for outdoor air monitoring
Environmental Health Strike Team (Air) – indoor air	80 buildings can be surveyed for re-entry air quality over a 30-day period by a unit of 3 members	1,000 buildings surveyed in a 30-day period	6 teams of 6 members (2 units) for indoor air monitoring
Environmental Health Strike Team (Wastewater)	Strike Team can inspect: • 7 large regulated waste water supply systems per day • 35 small regulated waste water supply systems per day • 42 temporary waste water lagoons per day • 196 land application sites per day	Need to inspect: • 49 large regulated water supply systems in 1 week • 1,960 smaller regulated waste water supply systems in 2 weeks • 588 temporary lagoons assessed in 2 weeks • 28 land application sites are established and inspected in 1 weeks	1 team for large systems 2 teams for smaller systems 2 teams for lagoons 1 team for land sites
Environmental Health Strike Team (Shelter)	1 strike team per average 1000 shelter residents	400,000 affected population	100 teams
Environmental Health Lead Coordinator	1 Lead Coordinator per 12 Strike Teams	260 Strike Teams	22 Lead Coordinators
Environmental Health Liaison	1 per EOC		1 per EOC

Target Capability Preparedness Level

Resource Element Unit	Type of Element	Number of Units	Unit Measure (number per x)	Lead	Capability Activity supported by Element
Environmental Health Task Force (General)	Personnel, Training & Equipment	1	Per 250,000 population or per county/jurisdiction	Local	All Activities
Environmental Health Strike Team (Radiological)	Personnel, Training & Equipment				Direct Environmental Health Operations; Activate Environmental Health; Provide Environmental Health Support to Hazardous Materials Management and Decontamination
Environmental Health Strike Team (Food)	Personnel, Training & Equipment	1	1 per 125,000 population	Local	Direct Environmental Health Operations; Activate Environmental Health; Ensure Safety of Food Supplies
Environmental Health Strike Team (Potable Water)	Personnel, Training & Equipment	1	1 per 500,000 population	State (environmental protection department, public health department)	Direct Environmental Health Operations; Activate Environmental Health; Ensure Safety of Potable Water Supplies
Environmental Health Strike Team (Debris and Waste Management)	Personnel, Training & Equipment	1	Per 45 square miles	Local (environmental health department)	Direct Environmental Health Operations; Activate Environmental Health; Provide Environmental Health Support to Solid Waste/Debris Removal
Environmental Health Strike Team (Vector Control)	Personnel, Training & Equipment	1	1 per county or jurisdiction	Local	Direct Environmental Health Operations; Activate Environmental Health; Provide

Resource Element Unit	Type of Element	Number of Units	Unit Measure (number per x)	Lead	Capability Activity supported by Element
					Vector Control
Environmental Health Strike Team (Hazardous Materials)	Personnel, Training and Equipment	1	1 per 200,000 population	Local (environmental protection department)	Direct Environmental Health Operations; Activate Environmental Health; Provide Environmental Health Support to Hazardous Materials Facilities Surveillance and Hazardous Materials Incident Response
Environmental Health Strike Team (Air) – Outdoor air	Personnel, Training & Equipment	1	1 per county or jurisdiction	Federal (EPA)	Direct Environmental Health Operations; Activate Environmental Health; Ensure Safety of Outdoor Environments
Environmental Health Strike Team (Air) – indoor air	Personnel, Training & Equipment	1	1 per county or jurisdiction	Federal (EPA)	Direct Environmental Health Operations; Activate Environmental Health; Ensure Safety of Building Environments;
Environmental Health Strike Team (Wastewater)	Personnel, Training & Equipment	1	1 per 500,000 population	State (environmental protection department, public health department)	Direct Environmental Health Operations; Activate Environmental Health; Ensure Safety of Wastewater Management
Environmental Health Strike Team (Shelter)	Personnel, Training & Equipment	1	Per 1000 sheltered persons	Local	Direct Environmental Health Operations; Activate Environmental Health; Provide Environmental Health Support to Mass Care

Resource Element Unit	Type of Element	Number of Units	Unit Measure (number per x)	Lead	Capability Activity supported by Element
					Response
Environmental Health Lead Coordinator	Personnel & Training	1	Per 12 Strike Teams	Local	All Activities
Environmental Health Liaison	Personnel & Training	1	Per EOC or jurisdiction		All Activities

References

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