Emergency Support Function #3
PUBLIC WORKS & ENGINEERING

Lead Agencies

- Virginia Department of Health (VDH)

Support Agencies and Organizations

- Department of General Services (DGS)
- Professional Engineers Emergency Response Team (PERT)
- Department of Mines, Minerals, and Energy (DMME)
- Department of Housing and Community (DHCD) Development
- Department of Environmental Quality (DEQ)
- Virginia Department of Emergency Management (VDEM)
- Virginia Department of Transportation (VDOT)
- Virginia Department of Forestry (VDOF)
- Virginia Water/Wastewater Agency Response Network (VAWARN)
- Department of Conservation and Recreation (DCR)
- Department of Historic Resources (DHR)

Purpose

Emergency Support Function (ESF) #3 supports the Virginia Emergency Response Team (VERT) by coordinating and organizing the capabilities and resources of the Commonwealth to facilitate the delivery of essential engineering services.

Scope & Applicability

Activities within the scope of this function are specific to government-owned infrastructure. Assistance to localities will be provided as deemed necessary by the Commonwealth. These activities include providing resources and oversight; post incident assessments of facilities and infrastructure; technical assistance to include engineering expertise, construction management, contracting and real estate services; and emergency repair or demolition of infrastructure and critical facilities.

Policies

- All agencies assigned responsibilities within this ESF will develop and maintain the necessary plans, standard operating procedures, mutual aid agreements, and model contracts to successfully accomplish their tasks.

Local Governments

- Local governments are responsible for their own public works and infrastructures and have the primary responsibility for incident prevention, preparedness, response, and recovery.
- Local governments are integrated into ESF #3 activities.
- When activated to respond to an incident, the lead agencies for ESF #3 develop work priorities in cooperation with local governments.
- Local authorities are responsible for obtaining required waivers and clearances related to ESF #3 support.

Private Sector

- The private sector is responsible for a large proportion of the infrastructure in the Commonwealth and participates in ESF #3 incident action planning and other planning activities as appropriate.
- The private sector is a partner and/or lead for the rapid restoration of infrastructure-related services.
- Appropriate private-sector entities are integrated into the planning and decision making processes as necessary

Organizational Structure

The Office of Drinking Water, Virginia Department of Health will lead this ESF, and during emergency operations will coordinate the activities of the above agencies and the Public Works and Engineering section.

This ESF contains three attachments that address specific sectors of the infrastructure. Another component, energy, is addressed in ESF #12. The components are:

- Attachment 1 – Water Supply & Waste Water Treatment
- Attachment 2 – Dam Safety
- Attachment 3 – Debris Management

Concept of Operations

A catastrophic or major emergency may cause severe property damage. Structures may be destroyed or severely weakened. Homes, public buildings, bridges, dams, and other facilities may have to be reinforced or demolished to ensure safety. Public works facilities (water works, power plants/lines, highways, etc.) will be damaged and may be partially or fully inoperable. Equipment in the immediate disaster area may be damaged or inaccessible. Structural and environmental debris will need to be decontaminated, collected, and removed.

Local resources may not be adequate to meet emergency requirements. Local governments may need assistance with damage assessments, structural evaluations, emergency repairs to essential public works facilities, stabilizing or demolishing of structures to reduce hazards, and the provision of water for human health needs and firefighting. The Public Works and Engineering function must be able to identify and deploy significant numbers of personnel with public works, engineering, and construction skills along with equipment and materials from outside the affected area in order to provide these services.

The VEOC will organize and deploy Needs Assessment Teams to any localities which have been affected and cannot adequately assess their own critical needs. ESF #3 agencies may be asked to provide qualified technical persons to serve on these teams and to be responsible for the Public Works and Engineering part of the assessment.

Teams have been organized and trained for these specific functions and an appropriate level of readiness is maintained. Resource listings of professional engineers, contractors, and equipment should be maintained as needed. Emergency response teams may be needed for the following public works related functions.

1. Temporary (Emergency) restoration of water supply systems.
2. Emergency demolition or stabilization of buildings.
3. Emergency demolition or stabilization of dams.
4. Contract services for the repair of public works facilities.

Roles & Responsibilities

Virginia Department of Health

- Coordinate environmental health efforts (e.g., response work, database management of environmental sample

results, interpretation of results, and risk communication)

- Keep ESF #8 informed about the status of any potential or occurring water system-related problem in the state and recommend appropriate actions, such as an emergency declaration, when necessary.

- Coordinate emergency assistance with ESF #8.

- Provide the required interface with the Environmental Protection Agency (EPA) and other federal agencies during emergency operations.

- Assess public water utilities, alternative water supplies, unregulated systems, and temporary or mobile treatment systems.

- Evaluate the re-entry and re-occupancy of facilities (e.g., homes, educational, institution and health care facilities) and establish an evaluation process, assessment criteria, and indicators of safe re-occupation.

VDH, Office of Drinking Water

- Assess and report damage through the Field Director based on an on-site inspection.

- Advise local authorities on most effective means of providing emergency services and eliminating real and potential public health hazards. Serve as an engineer and technical advisor where no other such services are available.

- Advise local authorities on restoration of safe drinking water, municipal sewage treatment, and human waste disposal based on priorities set by the Field Director and the Office of Drinking Water.

- Assist local jurisdictions with emergency response and damage assessment.

Department of General Services

- Provide technical assistance in the identification, evaluation, stabilization, rehabilitation, and/or demolition of state owned buildings and facilities.

- Assist, as resources are available, other building code officials in their jurisdiction as requested.

- Assess and develop strategies to protect, stabilize, and restore buildings and facilities of historic significance.

- Ensure that all construction and redevelopment on state-owned property complies with the appropriate building codes, zoning and land use regulations, as well as local and regional comprehensive plans.

- Assist in the management and coordination of emergency contracting services.

- Assist with the review of contract administration terms and conditions in contracts issued for services related to the recovery effort.

- Assist localities, if requested and as resources are available, to process the large number of building permits which may be required.

- Assist with contracting for the removal of debris from state owned property.

- Develop and maintain a list of contractors who provide debris removal, collection, reduction, and disposal services.

- Develop model contracts and generic scopes of work to assist state agencies and local jurisdictions in the development and implementation of their debris removal contracts.

- Assist state agencies and local governments in developing cooperative agreements for debris removal.
- Provide laboratory services to detect and identify any chemical or biological contaminants in water.
- Assist with contracts for essential water needs (potable water.)
- Implement appropriate measures regarding the efficient utilization and distribution of limited water resources (conservation measures).
- Assist responsible entities with the restoration and operation of water and sewage treatment facilities.
- Assist with the enforcement of regulatory standards for the treatment and disposal of waste, as necessary.

Professional Engineers Emergency Response Team

- Assess the scope of damages and estimate repair costs in the following categories: debris clearance, emergency protective measures, road systems, water control facilities, buildings and equipment, and public utility systems.
- Determine the extent to which private homes and businesses have been impacted by the disaster.

Department of Mines, Minerals, and Energy

- When needed, operate at the VEOC and provide technical expertise.

Department of Housing & Community Development

- Support Damage Assessment and Needs Assessment surveys in the disaster area as requested by the VEOC.

Department of Environmental Quality

- Provide technical assistance to wastewater treatment facilities on mitigation, response, and recovery strategies leading up to, during, and following a disaster situation.
- Provide regulatory direction and technical assistance associated with wastewater treatment plants, collection systems, and land application of wastewater.
- Track status of damaged waste water treatment plants and share information with VDH and other agencies as necessary.
- Provide regulatory and technical assistance to state agencies, local jurisdictions, and private contractors regarding environmental issues that will arise during the debris removal, storage, reduction, and disposal process.
- Assist state agencies and local governments in the selection, establishment, management, and closure of debris storage and reduction sites.
- Expedite the permit process to accomplish debris removal in an effective, timely, and efficient manner.

Virginia Department of Emergency Management

- Provide appropriate training and tools to help local and state agencies implement a debris management process and to prepare for the cost recovery processes required by FEMA.
- Establish and coordinate the debris assessment and removal process following a disaster.
- Develop a list of potential local, state, and federal contacts who may serve on the interagency, multi-disciplinary debris

storage and reduction site selection teams.

- Coordinate with the appropriate regulatory agencies regarding potential issues that may arise during disaster response and recovery and their possible resolution.

- Assist state agencies, local governments and other eligible applicants in the preparation and submission of federal disaster assistance grant applications.

Virginia Department of Transportation

- Coordinate the removal of debris from all state transportation facilities (e.g., highways, bridges, tunnels etc.).

- Pre-identify critical routes throughout the state, in cooperation with local governments.

Virginia Department of Forestry

- Coordinate the removal of debris from all state forest facilities (e.g., hiking trails, campsites, fire breaks etc.) in an environmentally sound manner, utilizing public and private resources.

Virginia Water/Wastewater Agency Response Network

- Provide equipment, supplies, and personnel (by resource type) to other VA WARN members without the need for an emergency declaration by the Governor or President.

Department of Conservation and Recreation

- Coordinate the removal of debris from all state park and recreation facilities (e.g., hiking trails, campsites, fire breaks etc.)

- Support requests for public safety and security from the Virginia State Police that are within the agency's capabilities and within the parameters of other operational commitments, existing agreements, protocols, and statutes as required

Department of Historic Resources

- Assess and develop strategies to protect, stabilize, and restore buildings and facilities of historic significance.

Authorities & References

Authorities

- Virginia Emergency Services and Disaster Laws

References

- Emergency Management Accreditation Program (EMAP) 4.6.3: The emergency operations/response plan shall identify and assign specific areas of responsibility for performing essential functions in response to an emergency or disaster. Areas of responsibility to be addressed include: public works and engineering services.

Attachment 1 – Water Supply and Wastewater Treatment

Purpose

To assist local governments and public service authorities in the restoration of drinking water and human waste disposal facilities and systems following a disaster or emergency situation.

Organizational Structure

The Virginia Department of Health is the lead agency responsible for assisting localities and coordinating with the VEOC in the event of a water system-related emergency. A public works and engineering function or coordinating office will be established within the VEOC during emergency operations.

Concept of Operations

All water-related problems will be evaluated for their impact on public health. The most serious threats to public health will be corrected first. In the absence of other guidelines, the following priorities will apply:

1. Provision of safe drinking water.
2. Ensuring sanitary human waste disposal.
3. Maintaining general sanitation.

Local governments must develop and maintain emergency response plans and procedures for water-related emergency situations. It should include provisions for repairing system failures quickly and for mandatory conservation in the event of water shortages.

Public drinking water supplies may be owned and operated by local governments singularly, jointly, or by private companies. The Department of Health has regulatory authority over water supplies. The Department of Environmental Quality has regulatory authority over waste water treatment plants.

When a water contamination emergency is localized, the city or county must, in coordination with state authorities (VDH and the VEOC), take action to restrict use during the emergency period.

Local governments must also restrict water use in a severe and widespread water outage or water contamination situation. If appropriate, the Governor may need to declare an emergency to facilitate coordinated action between state and local governments and to permit the state to provide emergency assistance to supplement local efforts.

Attachment 2 – Dam Safety

Purpose

To assist local governments in the evacuation downstream inundation areas and to take other actions as needed to protect human life or property in the event of an imminent or impending dam failure or major spillway discharge.

Organizational Structure

Owners of each dam are responsible for its safe and proper design, construction, operation, and maintenance. Owners of dams that are 25 feet or greater in height, impound 15 acre-feet or greater; or 6 feet or greater in height and impound 50 acre-feet or greater of water, and which are not exempt, nor regulated by others, must comply with the Virginia Dam Safety Act. Smaller dams are excluded.

Should an emergency arise, dam owners are responsible for notifying local government(s) and for recommending evacuation downstream if appropriate. Local governments are responsible for making the decision to evacuate, for effecting evacuation, and for notifying the VEOC. In a backup capacity, the VEOC will also notify affected cities and counties downstream.

In accordance with the Virginia Dam Safety Act, the Virginia Soil and Water Conservation Board administers the dam safety program through the Department of Conservation and Recreation. The Department of Conservation and Recreation also maintains this part of the COVEOP.

Concept of Operations

There are four "classes" of dams from high hazard to low. The owner of each dam covered by the Virginia Dam Safety Act is required to prepare an Emergency Action Plan (EAP). This plan shall include a method of notifying local authorities, and notifying and warning persons downstream of the dam of an impending dam failure or overtopping. A copy of each EAP must be provided to the affected local government, to the regulatory agency, and to the Virginia Department of Emergency Management (VEOC).

Standards have been established for three emergency stages. The affected public will be routinely notified of conditions at a dam during Stage I. If conditions deteriorate to Stage II, the public in the potential inundation area downstream will be alerted for possible evacuation. If conditions deteriorate further to Stage III, local government will declare a local emergency and order an evacuation. It is recognized, of course, that a dam may collapse without warning.

The Virginia Dam Safety Act covers the basic dam safety responsibility for dams in the Commonwealth. All dams are included except those which are specifically excluded All regulated dams except Special Low Hazard (potential damage confined to the owner) require that the owner prepare an Emergency Action Plan.

Large dams that are excluded from the requirements of the Virginia Dam Safety Act, due to licensing or ownership, are regulated by their respective federal agency. The operators of large hydroelectric dams and others licensed by the Federal Energy Regulatory Commission (FERC) are also required to prepare and implement EAPs. Localities must be prepared to evacuate persons downstream from these dams as well as for those under the jurisdiction of the Virginia Dam Safety Act.

Each city and county is required to develop and maintain a local Emergency Operations Plan (EOP) which identifies any federal or state regulated dams in their jurisdiction and which sets forth procedures for the evacuation of persons downstream. Each dam EAP will identify the inundation area and persons to be evacuated.

The possibility of a dam failure without warning is very remote for a large reinforced concrete gravity type dam. Any unsafe condition would normally be detected early and appropriate actions would be taken. If any possibility of dam failure is indicated or if a controlled release from the spillway should be required, the dam owner/operator will notify local government and the VEOC immediately. The failure of smaller rock-fill or earthen type dams, which might result from heavy flooding and/or erosion, is more likely and could occur with little or no advance warning. Such dams should be closely monitored by dam owners and by local officials during and immediately following periods of heavy rain.

Dam Classifications

Dams that are 25 feet or greater in height and impound 15 acre-feet or greater; or 6 feet or greater in height and impound 50 acre feet or greater must be classified as to the degree of hazard potential they impose should the structure fail.

I. (High Hazard) - Probable loss of life; excessive economic loss.

II. (Moderate Hazard) - Possible loss of life; appreciable economic loss.

III. (Low Hazard) - No loss of life expected; minimal economic loss.

IV. (Special Low Hazard) - No loss of life expected; no economic loss to others.

Emergency Stages

When abnormal conditions impact on a dam, such as flooding or minor damage to the dam, the dam owner should initiate specific actions that will result in increased readiness to respond to a potential dam failure.

The following stages identify actions which may be appropriate and available response times:

Stage I - Slowly developing conditions; five days or more may be available for response. Owner should increase frequency of observations and take appropriate readiness actions.

Stage II - Rapidly developing conditions; overtopping is possible. One to five days may be available for response. Increase readiness measures. Notify local Coordinator of conditions and keep him informed.

Stage III - Failure has occurred, is imminent, or already in flood condition; overtopping is probable. Only minutes may be available for response. Evacuation recommended.

Attachment 3 – Debris Management

Purpose

To facilitate and coordinate the collection, decontamination, removal, and disposal of debris following a disaster.

Organizational Structure

Debris removal is a function of the Public Works and Engineering Support function. VDOT, DGS, and VDEM are the lead state coordinating agencies and will work in conjunction with designated support agencies, utility companies, waste management firms, and trucking companies, to facilitate the debris clearance, collection, reduction, and disposal needs of state and local governments following a disaster.

Concept of Operations

Due to the limited quantity of resources and service commitments of state agencies and local governments, the state and its political subdivisions will be relying heavily on private contractors to fulfill the mission of debris removal, collection, and disposal.

Model contracts with a menu of services and generic scopes of work will be developed prior to the disaster to allow state agencies and local jurisdictions to more closely tailor their contracts to their needs, as well as expedite the implementation of them in a prompt and effective manner.

Every state agency and political subdivision will be responsible for managing the debris contract from project inception to completion unless the government entities involved are incapable of carrying out this responsibility due to the lack of adequate resources. In these circumstances, other state and federal agencies will be identified to assume the responsibility of managing the debris contract. Managing the debris contract would include such things as monitoring of performance, contract modifications, inspections, acceptance, payment, and closing out of activities.

Debris Removal Priorities

The debris removal process must be initiated promptly and conducted in an orderly, effective manner in order to protect public health and safety following a major or catastrophic disaster.

1. Clear debris from key roads in order to provide access for emergency vehicles and resources into the impacted area.

2. Providing access to critical facilities pre-identified by state and local governments.

3. Elimination of debris related threats to public health and safety. This will include such things as the repair, demolition, or barricading of heavily damaged and structurally unstable buildings, systems, or facilities that pose a danger to the public.

Debris Classification

To facilitate the disposal process, debris will be segregated by type. The state will adapt the categories established for recovery operations by the Corps of Engineers. Modifications to these categories can be made as needed. Hazardous and toxic materials/contaminated soils, and debris generated by the event will be handled in accordance with federal, state, and local regulations.