



WATER & WASTEWATER MUTUAL AID & ASSISTANCE RESOURCE TYPING MANUAL

April 2008



**American Water Works
Association**

The Authoritative Resource on Safe WaterSM



**American Water Works
Association**

The Authoritative Resource on Safe Water SM

Copyright © 2008 American Water Works Association.
All rights reserved.

Printed in the United States of America

American Water Works Association
6666 West Quincy Avenue
Denver, CO 80235-3098

TABLE OF CONTENTS

Preface	Page 4
Section I Introduction to Resource Typing	Page 5
Introduction to Mutual Aid and Assistance	
Defining Resource Typing	
The Role of Resource Typing in the Effective Provision of Mutual Aid and Assistance	
National Incident Management System (NIMS) Resource Typing Criteria and Framework	
Section II How to Use this Manual	Page 9
Using this Manual	
Water Sector Resource Typing Framework and Definitions	
Personnel	
Vehicle, Equipment and Tools	
Materials and Expendable Supplies	
Limiting Factors and Assumptions	
Information and Resources Requestors Should Provide	
Responders Accommodations Information	
Additional Information	
Acronyms	
Definitions	
Section III Specific Water Sector Resources	Page 17
Water Processes	Page 18
Water Production Facilities Damage Assessment, Repair and Start-up Team	
Water Production Facilities Operations Personnel	
Water Pump Facilities Damage Assessment and Repair Team	
Water Lab Support Personnel	
Water Distribution	Page 22
Water Distribution System Flushing, Flow Testing, Sampling and Field Analysis Team	

Water Distribution System Damage Assessment and Repair Team
Water Valve Operations Team
Water Mains Leak Location Team

Wastewater Processes

Page 26

Wastewater Treatment Facilities Damage Assessment, Repair and Start-up Team
Wastewater Treatment Facilities Operations Personnel
Wastewater Lab Support Personnel
Wastewater Lift and Pump Stations Damage Assessment, Repair and Start-up Team
Wastewater Sampling and Field Analysis Team

Wastewater Collection

Page 31

Sewer Mains Damage Assessment and Repair Team
Sewer Mains and Manholes Cleaning and SSO / CSO Clean-up Team

General and Supporting Resources

Page 33

Water / Wastewater Emergency and General Management Support Personnel
Water / Wastewater Public Information Officer (PIO) Personnel
Water and Sewer Main, Valve and Manhole Locating Team
Water / Wastewater Health and Safety and Environmental Compliance Personnel
Water / Wastewater Electrical Generator and Direct Drive Teams
Control Systems, SCADA and Radio Systems Repair and Restoration Team
Vehicle and Equipment, Maintenance, Repair and Fueling Teams
Facility Access Restoration and Debris Clearing Team

Appendix I Typed Equipment Resources

FEMA 508-7 Typed resources – Public Works Resources (May 2005)

Dump Truck-on Road
Backhoe Loader
Generator

Hydraulic Truck Cranes

Hydraulic Excavator

Additional Equipment Definitions

Sewer Jet / Vac Truck

Sewer Jet Truck

Sewer Power Rod Truck

Water Valve Operating Truck

Appendix II EMAC REQ-A Form

Appendix III Mutual Aid and Assistance Cost Estimate Development Spreadsheet

Appendix IV Mutual Aid and Assistance Responders Accommodations Checklist

Preface and Acknowledgements

This *Resource Typing Manual* was written to provide guidance to water and wastewater utilities when they request and provide mutual aid and assistance resources during and after an emergency. The resources described in this manual are those anticipated to be needed up to the first thirty days following an incident, emergency, disaster, or catastrophe, herein referred to jointly as “incidents”. While mutual aid and assistance between water and wastewater systems is valuable in all phases of an incident, it is most valuable during the initial response and recovery phase, before many resources from other levels of government and private contractors can be mobilized. For the purpose of this manual, the term “water sector” includes providers of potable water, sanitary sewer, storm sewer and reclaimed water services.

This *Resource Typing Manual* was developed and written based upon research of existing resource typing models in the water sector and elsewhere, as well as extensive involvement of water sector stakeholders.

Project Advisory Committee

Steve Dennis, Alameda County Water District

Vanessa Lieby, The Cadmus Group

Richard Talley, City of Fort Worth

Gary Williams, Florida Rural Water Association

AWWA Staff

Kevin M. Morley, Regulatory and Security Analyst

Project Contractors

URS – Jack Moyer and Duane Verner

The Horsley Witten Group – Tom Noble

Project Funding

This project was funded by the American Waterworks Association (AWWA), utilizing Water Industry Technical Action Fund (WITAF) funds, as WITAF Project #508.

Manual Overview

This manual is not intended to be a comprehensive mutual aid and assistance manual. Instead, it serves as a complement to other mutual aid and assistance materials. Additional mutual aid and assistance information and materials can be found at the Water and Wastewater Agencies Response Network (WARN) website, www.NationalWARN.org. Concurrent with the development of this manual, many WARN programs are developing WARN Mutual Aid and Assistance Operational Plans, based upon a model developed by the USEPA, hereinafter referred to as the “Sample WARN Operational Plan”. The Sample WARN Operational Plan provides a broader scope of mutual aid and assistance information and material, supported by this manual. This resource typing manual is also not intended to serve as an inventory or database of mutual aid and assistance resources. In fact, it is envisioned that this manual will, to a

great extent, reduce the need for the maintenance of inventories of resources for mutual aid and assistance or help those WARN systems to choose to maintain inventories to structure those inventories.

Before using the resource sheets in Section III of this manual, it is very important that mutual aid and assistance requestors and responders read and understand the material in Section II. Ideally, water sector professionals should become familiar with the information in this manual before they need to use it as a mutual aid and assistance requestor or responder.

Changes to this document are expected due to lessons learned, changes in protocols, and/or modification to the WARN Agreement. Such future revisions of this manual will be managed by AWWA and will be designated as “Revision #_____”, with a revised cover date.

This manual is organized into the following sections:

- Section I - Introduction to Resource Typing
- Section II - How to Use this Manual
- Section III - Specific Water Sector Resources
- Appendices

Section I Introduction to Resource Typing

Introduction to Mutual Aid and Assistance

Incidents of various forms, including Hurricane Katrina in 2005, demonstrate the vulnerability of water and wastewater systems to significant damage and service interruptions. Regardless of the incident, the impacts of all hazards upon water and wastewater systems have consistent underlying similarities, such as the loss of electrical power or flood-damaged facilities and infrastructure. These, in turn, often result in poor water quality, reduced or no water, and / or little to no wastewater treatment.

In the aftermath of incidents, water and wastewater systems have demonstrated their strong willingness and ability to help one another in both the response to and recovery from these incidents. As a rule, un-impacted water and wastewater systems have everything that is needed by their impacted counterparts. When a water or wastewater system is damaged, more response and recovery resources are available from other water and wastewater systems than from any other source. As a result, it is particularly important that water and wastewater systems are able to rapidly communicate their mutual aid and assistance needs in a shared, common terminology.

Despite the existence of available resources and the strong willingness of water and wastewater systems to assist their impacted counterparts, “Utilities Helping Utilities” mutual aid and assistance does not occur effortlessly and seamlessly. Many water and wastewater agencies and organizations, including AWWA, have worked together to improve intrastate and interstate mutual aid and assistance opportunities. This collaborative effort has produced many advancements in mutual aid and assistance networks between water and wastewater systems, particularly the recent inception of Water / Wastewater Agency Response Networks (WARNs) in many states. WARNs and other mutual aid and assistance enhancements have provided the organization and framework for the timely provision of mutual aid and assistance within the water sector. Mutual aid and assistance is also addressed in the Water Sector Specific Plan (SSP), which supports the National Infrastructure Protection Plan (NIPP).

In spite of the strong willingness of water and wastewater utilities to support one another following an incident, it is important that responding utilities are appropriately compensated for the mutual aid and assistance provided in order to ensure the long-term viability of mutual aid and assistance networks and therefore the resiliency of the water sector. Information on the reimbursement process can be found in state WARN agreements and Operational Plans.

Defining Resource Typing

Resource typing is the categorization and description of response resources that are commonly exchanged in disasters through mutual aid and assistance agreements. Resource typing definitions can give utilities the information they need to ensure that they request and receive the appropriate resources during an incident. The resource

typing protocol provided by the National Incident Management System or NIMS (and used in this manual) describes resources using the parameters of category, kind, components, metrics, and type. The NIMS uses the following definitions:

Resource - For purposes of typing, *resources* consist of personnel, teams, facilities, supplies, and major items of equipment available for assignment to or use during incidents. Such resources may be used in tactical support or supervisory capacities at an incident site or Emergency Operations Center (EOC). Their descriptions include category, kind, components, metrics, and type, further defined below.

Category - A *category* is the function for which a resource would be most useful. For example, the resources described in this manual are most useful for the Public Works and Engineering category established by the NIMS, under the subcategory of Water and Wastewater (established by the water sector).

Kind - *Kind* refers to broad classes that characterize like resources, such as teams, personnel, equipment, supplies, vehicles, and aircraft.

Components - Resources can comprise multiple *components*. For example, a Water Mains Damage Assessment and Repair Team is comprised of the personnel, vehicles and heavy equipment, equipment and materials necessary to perform the repairs indicated.

Metrics - *Metrics* are measurement standards. The metrics used will differ depending on the kind of resource being typed. The mission (or task) envisioned for the particular resource determines the specific metric selected. The metric must be useful in describing a resource's capability to support the mission. As an example, the metric used in this manual for describing pump sizes is horsepower (HP).

Type - *Type* refers to the level of resource capability. Assigning the Type I label to a resource implies that it has a greater level of capability than a Type II of the same resource (e.g., due to its power, size, or capacity) and so on down to Type IV. Typing provides additional information to aid in the selection and best use of resources. In some cases, a resource may have less than or more than four types. The type assigned to a resource or a component is based on a minimum level of capability described by the identified metric(s) for that resource. For example, in this manual, a Type I Sewer Mains Damage Assessment and Repair Team is capable of repairing mains of 24" and larger in diameter, while Type II, III and IV teams are capable of smaller main repairs only.

The Role of Resource Typing in the Effective Provision of Mutual Aid and Assistance

The WARN networks and other recent water sector efforts have improved opportunities for timely mutual aid and assistance between water and wastewater systems by providing standardized mutual aid and assistance agreements, mutual aid and assistance leadership frameworks, training for water and wastewater systems, on-line resource inventories, and legal frameworks for emergency aid and assistance. However, representatives of water

and wastewater systems impacted by incidents often find it difficult to clearly articulate their needs. Moreover, different water and wastewater systems often use different terminology for the same resources. As incidents become more severe and the distance between providing help and receiving help becomes greater, this challenge increases.

To optimize the opportunities for the sharing of mutual aid and assistance resources between water and wastewater systems, it is necessary for the water sector to develop standard or common resource terminology, definitions, protocols and resource types. This will reduce confusion when requesting mutual aid and assistance, and greatly enhance the chances of the correct resource arriving as quickly as possible. Standardized resource definitions and types will also substantially help with Federal Emergency Management Agency (FEMA) reimbursement of mutual assistance expenses, coordination of interstate mutual aid and assistance through state emergency management agencies and the Emergency Management Assistance Compact (EMAC), and an inventory of generally available aid and assistance resources for the water sector.

A number of efforts have been undertaken for the typing of water sector resources at the national level. Most notable is FEMA's NIMS Integration Center (now known as the Incident Management Systems Integration Division under the National Integration Center or NIC) initiative to develop the *National Mutual Aid and Resource Initiative - Glossary of Terms and Definitions* (FEMA 507, July 2005) and the initial *Resource Definitions* (FEMA, September 2004) for 120 mutual aid and assistance resources. This initiative covers mutual aid and assistance resources across many sectors and provides little, if any, resource typing for water and wastewater systems. The attention that is provided to water and wastewater utilities is generally "buried" within the public works sector (*Typed Resource Definitions – Public Works Resources*, FEMA 508-7, May 2005). In addition, the existing resource types incorporated in the NIMS resource typing system vary widely in their specificity. Relevant current FEMA NIC public works resource definitions and definitions of some other water sector-specific equipment are included in Appendix I of this document.

Most resource typing initiatives to date have been either very equipment-focused, such as "backhoe, rubber-tired", or very performance-focused, such as "team capable of repairing water mains..." Ideally, effective resource typing should achieve a balance between the two, with sufficient focus on equipment details, along with a performance-based focus. With a few exceptions, optimum resource types, including those developed during this project, are teams comprised of personnel, heavy equipment, smaller tools, materials and other necessary items to perform the intended mission.

National Incident Management System (NIMS) Resource Typing Criteria and Framework

Currently, the NIC has developed and published 120 "Tier One" Resource Typing Definitions (FEMA, September 2004). In FY 2006, state, territorial, tribal and local jurisdictions were required to inventory and type their response assets to conform to the NIMS Resource Typing standards. When states addressed the 2006 NIMS compliance

requirements (i.e., to inventory the national 120 “Tier One” resource typing definitions), many states chose voluntarily to expand the effort to inventory and type state-specific response resources and assets. This additional level of typing supports intrastate (i.e., within a state) as well as regional mutual aid and assistance plans, agreements, and compacts involving adjacent states or neighboring interstate (i.e., between states) local jurisdictions. As a result, states have identified and typed response resources and assets that exceed the current national 120 “Tier One” resources typed.

The NIC therefore currently recognizes the need to add the capacity to recognize both “Tier One” and “Tier Two” resource typing definitions. “Tier One” will continue to be national in its scope and consist of the current 120 resource typing definitions. “Tier Two” will be those resources defined and inventoried by the states, tribal, and local jurisdictions that are not “Tier One” resources, but rather those that are specific and limited to intrastate mutual aid and assistance, and to limited specific regional mutual aid and assistance (i.e., resources which may cross state lines, but which would not be “Tier One” resources). Also under “Tier Two” would be first responder resources that would not be deployable nationally (e.g., types of ocean rescue equipment), or are so common that national definitions are not required as they can be ordered using common language (e.g., pick-up trucks, etc.).

The resources described in this manual, typed by the water sector, are considered to be “Tier Two” resources. However, because these resources are being typed for national deployment, the water sector may submit the resources in this manual to the NIC in the future for consideration as “Tier One” resources.

Section II How to Use this Manual

Using this Manual

A requestor should first determine the type(s) of mutual aid and assistance that may be needed by assessing the type and extent of damage to the system (some of the teams identified in this manual are for damage assessment). The Sample WARN Operational Plan provides forms and protocols for damage assessment. Using this manual, requestors should then identify the resource “kind” (e.g., Sewer Main Damage Assessment and Repair Team), in Section III of this manual that best meets their needs and then request a resource “type” (e.g., Type II) from within that kind. Potential responders should then refer to the requested resource kind and type in Section III of this manual to determine their ability to meet the requested need. Many of the resource sheets in this manual include blanks or check-boxes to prompt requestors for the provision of additional information regarding the specific needs of the requesting agency. While the resource sheets in this manual are not designed as actual request forms, copies may be used to support a request or the detailed information may be provided by other means.

Requestors should also review the other resources provided in this manual to identify support resources that may be needed to support the primary resources requested, such as a Facility Access Establishment and Debris Removal Team to support the Sewer Mains Damage Assessment and Repair Team or a Vehicle and Equipment Maintenance, Repair and Fueling Team to support vehicles and equipment provided.

In some cases, FEMA’s NIC has already classified certain resources, primarily equipment, commonly used by the water sector and others. To avoid confusion with these pre-existing classifications, this manual incorporates those resources in Appendix I of this manual. An example is generators. The FEMA NIC has typed generators from the 125 kilowatt (Type V) to 2,000 kilowatt (Type I) range. When a generator in those output ranges is needed, utilities should use the FEMA NIC resource definitions contained in Appendix I. However, the water sector frequently needs generators smaller than 125 kilowatts in power output, which are addressed on the generator resource sheet.

It is very important that both requestors and responders review this Section and refer to the “Limiting Factors and Assumptions”, “Acronyms”, and “Definitions” subsections before finalizing plans to provide mutual aid and assistance, as there are some key operational guidelines provided in those subsections. The appendices of this manual and the Sample WARN Operational Plan also provide some materials and forms that may be needed in the request or provision of mutual aid and assistance.

Generally, at some point in the process of requesting mutual aid and assistance, the requesting utility will need to complete some form of request document. For mutual aid and assistance between agencies in different states, this will generally require the use of the EMAC REQ-A form. Appendix II of this manual contains a sample REQ-A form for specific use in EMAC requests. EMAC requests may be submitted only by EMAC coordinators, although the inclusion of this form provides an example of the types of

information generally needed from aid and assistance requestors and in EMAC requests, in particular. The Sample WARN Operational Plan also includes a generic request form.

Water Sector Resource Typing Framework and Definitions

The water sector falls within the NIMS resource category Emergency Support Function (ESF)-3, Public Works and Engineering. For the purposes of this manual, water and wastewater resources are referred to as a subcategory, although this subcategory is not currently formally recognized by the NIC. Each water sector resource is identified as a team or as a personnel resource. Generally, resources that include any combination of multiple personnel and non-personnel resources are referred to as teams.

Many of the water sector resources in this manual are classified into four types, with Type I having the greatest capability and Type IV having the least capability. In most cases, Type IV resources, where listed, indicate partial team capabilities that would support other teams or could be combined to comprise full Type I, II or III teams. In some cases, resource Types I, II and III may be different in terms of unique capabilities, but any individual type is not necessarily more capable than the other types within that resource kind. Examination of some of the resources described later in this manual in Section III will provide example and clarity to the different types.

Personnel

Most utilities use a relatively similar management reporting structure in the assignment of work to a work team. Providing a common management structure improves communication, focuses resources effectively, and establishes responsibility for the work tasks. However, utilities refer to positions by many different titles. For the purpose of this manual, the major, typical utility expertise and team command levels are listed below:

1. Team Leader - a Team Leader is responsible for setting up the job in the field and tasking work assignments within the team. The Team Leader is part of the work team and is an active participant in performing work tasks. In addition, the Team Leader serves as the resident technical expert in the field and is ultimately responsible for team safety. It should be noted that many of the teams in the resource sheets in this manual list lead personnel with other titles, but they all act as Team Leaders.
2. Specialized Positions – Specialized positions are those specific, skilled positions associated with a team, such as truck drivers and heavy equipment operators.
3. Utility Workers – Utility Workers perform the manual labor on the team.

Responsibility rests with the responder to ensure that, in their best judgment, the personnel that they provide in response to a mutual aid and assistance response are capable of accomplishing the work described and requested. Teams may be assembled with personnel, equipment and other resources from various responding utilities. In these

cases, one utility must take the lead in ensuring that the various team requirements are met. In some cases, that utility may be the requestor.

The team size ranges indicated on the individual resource sheets in Section III should be considered as ideals, not absolute minimums, unless precluded by applicable regulations. It is the responsibility of the responder to ensure that the team provided has the capability to safely and effectively accomplish the work indicated. Many of the resources are also scalable and can be provided in any quantity as needed by the requesting agency. For instance, a Type I Water and Sewer Main, Valve and Manhole Locating and Sewer CCTV Team is comprised of two persons. Nonetheless, a utility could request and another utility could provide a locating team comprised of six locators, as three Type I teams.

Vehicles, Equipment and Tools

In order to perform the desired repair activities, the responding utility will need to provide the necessary vehicles, equipment, and tools, as indicated on the resource type sheets. Also needed and not individually specified are basic tools such as power and hand tools that are common for the type of work performed. Generally, these tools are kept on utility vehicles and include valve keys, pipe saws, portable water pumps, wrenches, steam drivers, shovels, hammers, fuel containers, extension cords, ropes, slings, buckets, flashlights, small electrical generators, air compressors and pneumatic tools. Because restoration activities are often performed in areas where availability of tools is impeded, the responding utility must provide their own tools in mutual aid and assistance responses. In some instances, the resource typing equipment needs may be expanded to include mobile field warehousing of specialized tools. Responding teams should bring an appropriate power source to operate their tools – electrical, hydraulic or pneumatic.

Each responding team should possess communications equipment capable of supporting team communications in the field. Cellular telephones should not be considered as reliable communications in mutual aid and assistance responses. The requesting utility should provide each responding team with communications equipment (e.g., 2-way radios) to allow at least one member of the responding team to communicate with the requesting utility.

Each responding team should possess digital photographic capabilities. Photo transmittal capabilities are desirable and Global Positioning System (GPS) equipment is also desirable.

Materials and Expendable Supplies

Expendable supplies consist of those small, generally single-use items that are commonly used in the performance of construction and maintenance type work. Examples include saw blades, rags, nuts, bolts, common fittings, repair clamps, pipe solvent, lubricants, hydraulic oil and fuel, etc. It is expected that responding agencies will stock work vehicles with the expendable items normally used during the performance of the work.

Where water quality testing or diagnostic or forensic tests are undertaken, it is incumbent on the Team Leader to identify, obtain and bring any necessary testing equipment, reagents, standards and expendable supplies normally used in the field to perform sampling and analysis.

Limiting Factors and Assumptions

The following limiting factors and assumptions are listed to provide further guidance to mutual aid and assistance requestors and responders regarding the use of the resource typing provided in this manual.

1. Each responding team shall be responsible for complying with all applicable health and safety regulations associated with their work including, but not limited to, OSHA / DOT traffic safety, OSHA trench safety, Lock-Out Tag-Out, confined spaces, and fall protection; DOT Commercial Driver's License (CDL) program; and any other applicable federal, state, and local safety requirements. An individual on each team must be familiar with the regulations applicable to the nature of the team's work. Where more stringent state or local programs exist, it is incumbent on the requesting utility to apprise responders of those regulations and to enforce the more stringent requirements.
2. The resource typing included in this manual is not intended to provide individual capability credentialing unless otherwise specified, such as in the case of a Commercial Drivers License (CDL), which is an existing national credentialing program. All personnel specified in this manual must possess the appropriate CDL licenses for the vehicles they are driving or operating and other necessary skills for the mutual aid and assistance task they are expected to fulfill.
3. For all team and personnel resources, responders are responsible for all applicable Personal Protective Equipment (PPE), including, but not limited to, eye protection, hearing protection, hard hats, gloves, protective footwear, and general work site safety equipment such as trench shoring equipment, slings, portable tripods, ladders, "mud" pumps, basic traffic control devices and explosive / toxic gas / oxygen monitors. All responder teams must carry appropriate emergency first aid kits and fire extinguishers. The management program and the safety procedures necessary for the accomplishment of the specified work shall comply with federal DOT and OSHA programs or other applicable regulations.
4. Water and wastewater main repair teams should be assisted by requesting utilities in locating valves, and the requesting utility shall be responsible for approving water system shut-down by other means. All water and wastewater systems are encouraged to secure backup electronic and / or paper maps and records to ensure access to that information during a response.

5. For all heavy equipment that cannot be driven on roadways, the responding utility must provide a trailer capable of transporting the equipment and a vehicle capable of pulling that trailer. Such trailers and tow vehicles are not specified on the resource sheets.

6. Repair teams are responsible for leaving roadways in generally safe and drivable conditions after underground utilities are repaired. Permanent street pavement patching is the responsibility of the requestor or other agencies. Responding teams are also not responsible for aesthetic restoration (e.g., landscaping) of work sites. However, responding teams are responsible for leaving a work site in safe conditions (e.g., holes filled in or appropriately barricaded).

7. Unless otherwise indicated by the requestor, responders should assume the need to be fully self-sufficient in providing for their personal needs and their equipment. The Mutual Aid Responders Accommodations Checklist in Appendix IV of this manual, as well as a similar checklist in the Sample WARN Operational Plan, list much of the information needed in determining the degree of self sufficiency that must be provided.

Information and Resources Requestors Should Provide

In addition to indicating the kinds, types and quantities of resources needed, requestors should provide as much detail as possible regarding their specific needs. Many of the resource sheets in Section III of this manual indicate specific, additional information that may be required in order to achieve a suitable response. Requestors should also provide a local liaison to guide responders whenever possible. This is critical to tasks such as valve operations.

In most instances of the provision of mutual aid and assistance, it is at some point necessary for the responder and / or requestor to develop an estimate of the cost of the aid and assistance to be provided. Cost estimates may be needed for the approval of the responding utility, may be desired by the requesting utility, will be required as part of an interstate EMAC request approval, and will ultimately be needed as part of the FEMA reimbursement process. Appendix III of this manual provides a spreadsheet as a model for developing such estimates. A form for transmitting the cost information and other key information is provided in the Sample WARN Operational Plan.

Responders Accommodations Information

In addition to providing detailed information on the type of aid needed, aid requestors should provide as much information as possible on the accommodations that responders can expect and what level of self-sufficiency for which they should be prepared. Using the *Mutual Aid Responders' Accommodations Checklist* provided in Appendix IV of this manual, requestors can compile this information one time and then use the checklist to provide it to all potential responders. Potential responders can use the checklist to determine their ability to meet the accommodations needs and ensure that adequate support resources are provided.

Additional Information

Additional information on water sector mutual aid and assistance may be found at the following EPA, WARN and Florida WARN websites:

www.epa.gov/safewater/watersecurity

www.NationalWARN.org

www.FLAWARN.org

Acronyms

AWWA – American Waterworks Association

BOD – Biochemical oxygen demand

CAA – Clean Air Act

CCTV – Closed-circuit television

CDL – Commercial Driver’s License

CFM – Cubic feet per minute

CFR – Code of Federal Regulations

CSO – Combined sewer overflow

CWA – Clean Water Act

DOT – (United States) Department of Transportation

EOC – Emergency Operations Center

FEMA – Federal Emergency Management Agency

GAC – Granular activated carbon

GPS – Global positioning system

HAZMAT – Hazardous materials team

HP - Horsepower

KW - Kilowatts

MGD – Million gallons per day

MIOX – Mixed oxidants

OSHA – Occupational Safety and Health Administration

PAC – Powdered activated carbon

PIO – Public Information Officer

PLC – Programmable logic controller

PPE – Personal protective equipment

RCRA – Resource Conservation and Recovery Act

RO – Reverse osmosis

RPM – Revolutions per minute

SCADA – Supervisory control and data acquisition

SDWA – Safe Drinking Water Act

SSO – Sanitary sewer overflow

SUV – Sport utility vehicle

UV – Ultraviolet (disinfection)

WARN – Water / Wastewater Agency Response Network

WITAF – Water Industry Technical Action Fund

Definitions

Emergency Management Assistance Compact (EMAC) - A congressionally ratified organization that provides form and structure to interstate mutual aid. Through EMAC, a disaster impacted state can request and receive assistance from other member states quickly and efficiently.

Emergency Support Function (ESF) - Details the missions, policies, structures, and responsibilities of Federal agencies for coordinating resource and programmatic support to States, tribes, and other Federal agencies or other jurisdictions and entities during Incidents of National Significance.

Geophone - A device which converts ground movement, or displacement, into electricity that may then be recorded at a recording station.

Hazardous Waste Operations and Emergency Response Standard (HAZWOPER) - A regulation of US OSHA that regulates the safety and health of the employees of hazardous waste facilities and in any emergency response activities involving [hazardous substances](#).

Incident Command System (ICS) - A standardized, on-scene, all-hazard incident management protocol originally designed for fire fighting agencies and later federalized. The goal of ICS is to provide a common framework within which people can work together effectively in a crisis situation. ICS is designed to give standard response and operation procedures for emergency incidents to reduce the potential for miscommunication between multiple agencies that do not usually work together.

National Incident Management System (NIMS) - A system used to coordinate [emergency preparedness](#) and [incident management](#) among various federal, state, and local agencies.

National Infrastructure Protection Plan (NIPP) - Called for by Homeland Security Presidential Directive 7, this plan aims to unify Critical Infrastructure and Key Resource protection efforts across the country.

National Integration Center (NIC) - This center oversees all aspects of NIMS including the development of compliance criteria and implementation activities at federal, state and local levels. It also provides guidance and support to jurisdictions and incident management and responder organizations as they adopt the system.

Pneumatic tools - Also known as “air tools”, these tools are driven by gas, usually [compressed air](#) supplied by a [gas compressor](#), or compressed carbon dioxide (CO₂) stored in small cylinders.

Requestor – The utility in need of and requesting / receiving mutual aid and assistance resources.

Responder – The utility providing mutual aid and assistance resources.

Supervisory Control And Data Acquisition (SCADA) - Refers to a large-scale, distributed [measurement](#) and [control](#) system used to perform data collection and control at the supervisory level. These systems typically handle many daily operational functions at water and wastewater utilities.

Water-Sector Specific Plan (SSP) - A strategic “roadmap” for future water-specific security efforts developed by the Department of Homeland Security, the USEPA, the Water Sector Coordinating Council, and the Water Sector Government Coordinating Council.

Section III Specific Water Sector Resources

**RESOURCE: WATER PRODUCTION FACILITIES DAMAGE ASSESSMENT, REPAIR AND START-UP TEAM
AWWA April 2008**

Category: Public Works and Engineering (ESF 3) Subcategory: Water and Wastewater Kind: X Team

Component	Metric	Type I	Type II	Type III	Type IV
Capability	Degree and type of process repair capability	Pre-chem, post-chem, gaseous chlorination, chloramination, ozonation, MIOX, GAC, PAC, conventional filtration, membrane filtration, RO and UV	Pre-chem, post-chem, gaseous chlorination, chloramination, ozonation, GAC, PAC and conventional filtration, membrane filtration and RO	Pre-chem, post-chem, liquid chlorination, chloramination, MIOX, GAC, PAC and conventional filtration	Assessment only or components of Type I – III Teams
Ideal Team Size	Total persons	5+	4 - 5	4 - 5	1 - 3
Team Composition	Team member capabilities for assessment and repairs indicated	1+ Qualified mechanic 1+ Qualified electrician 1+ Plant operator 2+ Repair technicians (mechanic or electrician serves as team leader)	1+ Qualified mechanic 1+ Qualified electrician 1+ Plant operator 1+ Repair technicians (mechanic or electrician serves as team leader)	1+ Qualified mechanic 1+ Qualified electrician 1+ Plant operators 1+ Repair technicians (mechanic or electrician serves as team leader)	Any portion of other types that can be provided
Vehicles and Heavy Equipment	Number and type of vehicles and heavy equipment	2+ Heavy-duty pick-up trucks, one with equipment boom	2+ Heavy-duty pick-up trucks, one with equipment boom	2+ Heavy-duty pick-up trucks, one with equipment boom	Any portion of other types that can be provided
Other Equipment	Other specific equipment	Compressor, welder, small electrical generator, infrared camera, laser alignment tool, vibration analyzer and other necessary hand tools and diagnostic equipment	Same	Same	Any portion of other types that can be provided
Materials	As needed for repairs indicated	Expendable supplies needed	Expendable supplies needed	Expendable supplies needed	NA

This team is responsible for the assessment and repair of all types of water production facilities, regardless of size, with various settling systems, including intake facilities, raw water conveyance facilities, treatment plants and pump stations, excluding structural and similar scale repairs. Pump repairs are addressed as a separate team. Requestor to supply lead operator familiar with the treatment process and plant shut down and start up, as well as plant schematics. Requestor should specify treatment processes used and any materials that should be provided by the responders.

Types of facilities / processes in need of assessment and repair: _____

Materials that should be provided by responders: _____

Specific control systems used: Electronic _____ Pneumatic _____ Hydraulic _____

Facility capacity (MGD): _____

RESOURCE: WATER PRODUCTION FACILITIES OPERATIONS PERSONNEL

AWWA April 2008

Category: Public Works and Engineering (ESF 3) Subcategory: Water and Wastewater Kind: X Team

Component	Metric	Type I	Type II	Type III	Type IV
Capability	Degree and type of process operations capability	Pre-chem, post-chem, gaseous chlorination, chloramination, ozonation, MIOX, GAC, PAC, conventional filtration, membrane filtration, RO and UV	Pre-chem, post-chem, gaseous chlorination, chloramination, ozonation, GAC, PAC and conventional filtration, membrane filtration and RO	Pre-chem, post-chem, chlorination, chloramination, MIOX, GAC, PAC and conventional filtration	Components of Type I – III Teams
Ideal Team Size	Total persons	3	3	2	1-2
Team Composition	Team member capabilities for operation of processes indicated	1 Senior operator 2 Operators	1 Senior operator 2 Operators	1 Senior operator 1 Operator	Any portion of other types that can be provided
Vehicles and Heavy Equipment	Number and type of vehicles and heavy equipment	1 Light-duty vehicle preferred	1 Light-duty vehicle preferred	1 Light-duty vehicle preferred	Any portion of other types that can be provided
Other Equipment	Other specific equipment	Diagnostic lab equipment	Diagnostic lab equipment	Diagnostic lab equipment	Any portion of other types that can be provided
Materials	As needed	Expendable supplies needed	Expendable supplies needed	Expendable supplies needed	Any portion of other types that can be provided

These personnel are responsible for the operation of all types of water production facilities, regardless of size, with various settling systems, including wells, intake structures (excluding those that require boats), raw water conveyance facilities, treatment plants and pump stations. Requestor should specify treatment processes used and in which expertise is needed, as well as any materials that should be provided by the responders. Operators can be provided in any agreed-upon quantity, with a minimum of two.

Specific types of facilities and processes in need of operation: _____

Specific equipment or materials that should be provided by responders: _____

Specific control systems used: Electronic _____ Pneumatic _____ Hydraulic _____ Facility capacity (MGD): _____

RESOURCE: WATER PUMP FACILITIES DAMAGE ASSESSMENT AND REPAIR TEAM
AWWA April 2008

Category: Public Works and Engineering (ESF 3) Subcategory: Water and Wastewater Kind: X Team

Component	Metric	Type I	Type II	Type III	Type IV
Capability	Degree and type of repair and start-up capability	Raw, finished and booster pump stations with largest motor over 400 HP	Raw, finished and booster pump stations with largest motor 26 - 400 HP	Raw, finished and booster pump stations with largest motor less than 26 HP	Components of Type I – III Teams
Ideal Team Size	Total persons	4+	2 - 4	2 - 4	1-2
Team Composition	Team member capabilities for assessments and repairs indicated	1+ Qualified mechanic 1+ Qualified electrician 2+ Repair technicians (mechanic or electrician serves as team leader)	1+ Qualified mechanic 1+ Qualified electrician 0 – 2 Repair technicians (mechanic or electrician serves as team leader)	1+ Qualified mechanic 1+ Qualified electrician 0 - 2 Repair technicians (mechanic or electrician serves as team leader)	Any portion of Type II that can be provided
Vehicles and Heavy Equipment	Number and type of vehicles and heavy equipment	2 Heavy-duty pick-up trucks, 1 with equipment boom	2 Heavy-duty pick-up trucks, 1 with equipment boom	1 - 2 Heavy-duty pick-up trucks, 1 with equipment boom	Any portion of Type II that can be provided
Other Equipment	Other specific equipment	Necessary tools and equipment	Necessary tools and equipment	Necessary tools and equipment	Any portion of Type II that can be provided
Materials	As needed for repairs indicated	Expendable Supplies	Expendable Supplies	Expendable Supplies	NA

This team is responsible for the assessment and repair of all types of water pump facilities, regardless of size, including intake facilities (excluding those that require boats), raw water conveyance facilities, treatment plants and pump stations, excluding structural and similar scale repairs. Requestor should specify types of pump facilities in need of assessment and repair in which expertise is needed, as well as any materials that should be provided by the responder. Major repair materials provided by requestor or others.

Specific types of pump facilities in need of assessment and repair: _____

Specific materials that should be provided by responders: _____

Specific control systems used: Electronic _____ Pneumatic _____ Hydraulic _____ Facility capacity (MGD): _____

Maximum pump voltages: 4160 _____ 480 _____

RESOURCE: WATER LAB SUPPORT PERSONNEL
AWWA April 2008

Category: Public Works and Engineering (ESF 3) Subcategory: Water and Wastewater Kind: X Personnel

Component	Metric	Type I	Type II	Type III	Type IV
Capability	Water laboratory analysis	Chemist capable of running wet chemical, organic and inorganic analyses	Biologist capable of running cryptosporidium and giardia analyses	Lab technician capable of running BOD and basic microbiological analyses	NA
Personnel	Total persons	1	1	1	NA
Team Composition	Team member capabilities for work indicated	1 Water lab chemist	1 Water lab biologist	1 Water lab technician	NA
Vehicles and Heavy Equipment	Number and type of vehicles and heavy equipment	1 Light-duty vehicle preferred	1 Light-duty vehicle preferred	1 Light-duty vehicle preferred	NA
Other Equipment	Other specific equipment	As needed	As needed	As needed	NA
Materials	As needed	As needed	As needed	As needed	NA

Comments and Definitions: Requestor should check condition of laboratory and make an equipment assessment before requesting water lab support personnel.

**RESOURCE: WATER DISTRIBUTION SYSTEM FLUSHING, FLOW TESTING, SAMPLING AND FIELD ANALYSIS TEAM
AWWA April 2008**

Category: Public Works and Engineering (ESF 3) Subcategory: Water and Wastewater Kind: X Team

Component	Metric	Type I	Type II	Type III	Type IV
Capability	Degree and type of water distribution flushing or sampling and field analysis	Distribution system flow testing and flushing from hydrants and blow-offs	Sampling and field analysis where possible of bac-t, pH, turbidity, and chlorine residual	Sample transportation	Support only
Ideal Team Size	Total persons	2	2	1	1-2
Team Composition	Team member capabilities for work indicated	1 Lead flushing technician 1 Flushing technician	1 Water sampling technician 1 Water sampling assistant	1 Water sampling assistant	Any portion of other type that can be provided
Vehicles and Heavy Equipment	Number and type of vehicles and heavy equipment	1 Light-duty pick-up truck, 2 preferred	1 4X4 SUV or pick-up truck with enclosed bed	1 4X4 SUV or pick-up truck with enclosed bed	Any portion of other type that can be provided
Other Equipment	Other specific equipment	Diffuser, dechlorinator, flow-testing gauges and other necessary tools and small equipment	Necessary transport coolers and analytical testing equipment, sampling pump if needed	Necessary transport coolers	Any portion of other type that can be provided
Materials	As needed	As needed	Appropriate sampling containers, reagents and other supplies for two weeks of sampling work	As needed	NA

Comments and Definitions: Flushing personnel can be provided in any agreed-upon quantity, with a minimum of two. Requestor should provide a representative familiar with the hydraulics of the affected distribution system to accompany the team. Ice to be provided by requestor or others, as needed. HAZMAT should be used where samples may be hazardous.

RESOURCE: WATER DISTRIBUTION SYSTEM DAMAGE ASSESSMENT AND REPAIR TEAM

AWWA April 2008

Category: Public Works and Engineering (ESF 3) Subcategory: Water and Wastewater Kind: X Team

Component	Metric	Type I	Type II	Type III	Type IV
Capability	Diameter (in.) of mains repaired	24"+	10"-22"	2"- 8", including services and small meters	Portion of Type I – III Teams
Ideal Team Size	Total persons	6 - 8	5 - 7	4 - 5	1 - 3
Team Composition	Team member capabilities for assessments and repairs indicated	1 Team leader 1 Backhoe-loader operator 1 - 2 Tandem dump truck drivers 1 Lead repair technician 1 - 2 Utility workers 1 Welder if steel mains indicated	1 Team leader 1 Backhoe operator 1 - 2 Dump truck drivers 1 Lead repair technician 1 - 2 Utility workers 1 Welder if steel mains	1 Team leader 1 Backhoe operator 1 Dump truck driver 1 - 2 Utility workers 1 Welder (if steel)	Any portion of Type III that can be provided
Vehicles and Heavy Equipment	Number and type of vehicles and heavy equipment	1 Medium track excavator 1 Backhoe-loader 1 - 2 Tandem Dump trucks 1 Team / equipment tk. w/ boom	1 Medium track excavator 1 Backhoe-loader 1 - 2 Tandem Dump trucks 1 Team / equip. tk. w/ boom	1 Backhoe-loader 1 - 2 Tandem Dump trucks 1 Team / equip. tk.	Any portion of Type III that can be provided
Other Equipment	Other specific equipment	Air compressor, mud pump, welder (if steel) and necessary pneumatic, small power tools and hand tools for repairs indicated	Air compressor, mud pump, welder (if steel) and necessary pneumatic, small power tools and hand tools for repairs indicated	Air cmprsr., mud pump, welder (if steel) and needed pneumatic, small power tools and hand tools for repairs	Any portion of Type III that can be provided
Materials	As needed for repairs indicated	Repair couplings, sleeves and associated materials and expendable supplies for 60 assorted main repairs	Repair couplings, sleeves and associated materials and expendable supplies for 60 assorted main repairs	Repair couplings, sleeves and asctd. mtrls. & expendable supplies for 60 assorted main repairs	NA

This team is responsible for the assessment and repair of all types of water distribution facilities including mains, valves, hydrants and storage facilities (assessment and light repairs only), including excavation through backfill. Pump repairs are addressed as a separate team. Requestor should specify facilities in which repair expertise is needed, specific water main materials and size ranges in need of repair, and typical depth of facilities and soil conditions, as well as any materials that should be provided by the responders. Requestor to provide plans showing water main locations and coordinate notification of "call-before-you dig" service used in region. Traffic control considerations to be coordinated by requestor and responding utility. Pipe provided by requestor or others.

Specific types of system components in need of assessment and repair: _____ Main sizes and materials: _____

Typical depth: _____ Soil conditions: _____ Hydrant makes / models: _____

Specific materials that should be provided by responders: _____

**RESOURCE: WATER VALVE OPERATIONS TEAM
AWWA April 2008**

Category: Public Works and Engineering (ESF 3) Subcategory: Water and Wastewater Kind: X Team

Component	Metric	Type I	Type II	Type III	Type IV
Capability	Degree and type of valve operations capability	Valve box cleaning and valve operation	Valve operation	NA	Portion of Type I – III Teams
Ideal Team Size	Total persons	2	2	NA	1-2
Team Composition	Team member capabilities for work indicated	1 Team Leader 1 Utility worker with valve experience	1 Lead valve technician 1 Valve technician	NA	Any portion of other types that can be provided
Vehicles and Heavy Equipment	Number and type of vehicles and heavy equipment	1 Truck with truck-mounted or trailer-mounted vacuum unit and power valve operator	1 Truck with truck-mounted or trailer-mounted power valve operator	NA	Any portion of other types that can be provided
Other Equipment	Other specific equipment	Necessary tools and equipment	Necessary tools and equipment	NA	Any portion of other types that can be provided
Materials	As needed	Expendable Supplies	Expendable Supplies	NA	NA

Comments and Definitions: Requestor should provide system maps and indicate condition of valve boxes in need of location and operation. If possible, GPS coordinates should also be made available to the responder. The requestor should provide for debris removal over valves to expedite work. Requestor should also provide a licensed operator to turn valves if required by the requestor's state.

**RESOURCE: WATER MAINS LEAK LOCATION TEAM
AWWA April 2008**

Category: Public Works and Engineering (ESF 3) Subcategory: Water and Wastewater Kind: X Team

Component	Metric	Type I	Type II	Type III	Type IV
Capability	Level of leak locating technology	Electronic noise correlation leak locating	Geophones leak locating	Basic audio leak locating	Components of Type I – III Teams
Ideal Team Size	Total persons	2	2	1-2	1-2
Team Composition	Team member capabilities for work indicated	1 Lead leak locator 1 Leak location assistant	1 Lead leak locator 1 Leak location assistant	1 Lead leak locator 0 - 1 Leak location assistant	Any portion of Type I that can be provided
Vehicles and Heavy Equipment	Number and type of vehicles and heavy equipment	1 Light duty truck with noise correlation leak locating system	1 Light duty truck	1 Light duty truck	Any portion of Type I that can be provided
Other Equipment	Other specific equipment	Necessary hand tools, lighting and safety equipment	Necessary hand tools, lighting and safety equipment	Necessary hand tools, lighting and safety equipment	Any portion of Type I that can be provided
Materials	As needed	As needed	As needed	As needed	As needed

Comments and Definitions: Teams may need to work in dark conditions.

RESOURCE: WASTEWATER TREATMENT FACILITIES DAMAGE ASSESSMENT, REPAIR AND START-UP TEAM
AWWA April 2008

Category: Public Works and Engineering (ESF 3) Subcategory: Water and Wastewater Kind: X Team

Component	Metric	Type I	Type II	Type III	Type IV
Capability	Degree and type of repair and start-up capability	Physical / chemical and biological treatment, activated sludge, nutrient removal, tertiary filtration, gaseous chlorination, membranes, UV, dewatering and biosolids handling	Physical / chemical and biological treatment, activated sludge, tertiary filtration, gaseous chlorination, dewatering and biosolids handling	Physical / chemical and biological treatment, liquid chlorination, and dewatering	Septic systems, trickling filtration, sand filtration, biological lagoons and constructed wetlands
Ideal Team Size	Total persons	6+	4+	4+	1-4
Team Composition	Team member capabilities for assessments and repairs of processes indicated	1 Qualified mechanic 1 Qualified electrician 1+ Operator 1 Instrumentation tech. 2 Repair technicians (mechanic or electrician serves as team leader)	1 Qualified mechanic 1 Qualified electrician 1+ Operator 1 - 2 Repair technicians (mechanic or electrician serves as team leader)	1 Qualified mechanic 1 Qualified electrician 1+ Operator 1 - 2 Repair technicians (mechanic or electrician serves as team leader)	1+ Qualified mechanic or electrician 0 - 2 Repair technicians
Vehicles and Heavy Equipment	Number and type of vehicles and heavy equipment	1 or 2 Heavy-duty pick-up trucks or equivalent, one with equipment boom	1 or 2 Heavy-duty pick-up trucks or equivalent, one with equipment boom	1 or 2 Heavy-duty pick-up trucks or equivalent, one with equipment boom	1 or 2 Heavy-duty pick-up trucks
Other Equipment	Other specific equipment	Necessary tools and safety equipment (e.g., air monitors)	Necessary tools and safety equipment (e.g., air monitors)	Necessary tools and safety equipment (e.g., air monitors)	Necessary tools and safety equipment (e.g., air monitors)
Materials	As needed for repairs indicated	Expendable supplies needed	Expendable supplies needed	Expendable supplies needed	Expendable supplies needed

Comments and Definitions: This team is responsible for the assessment and repair of all types of wastewater treatment facilities, regardless of size, with various treatment systems, conveyance facilities, treatment plants and pump stations, excluding structural and similar scale repairs. Pump and lift station repairs are addressed as a separate team. Requestor to supply lead operator familiar with the treatment process and plant shut down, as well as start up and schematics of pipes and valves. Requestor should specify treatment processes used, as well as any materials that should be provided by the responders.

Specific types of facilities and processes in need of assessment and repair: _____

Specific materials that should be provided by responders: _____

Specific control systems used: Electronic _____ Pneumatic _____ Hydraulic _____ Facility capacity (MGD): _____

RESOURCE: WASTEWATER TREATMENT FACILITIES OPERATIONS PERSONNEL

AWWA April 2008

Category: Public Works and Engineering (ESF 3) Subcategory: Water and Wastewater Kind: X Personnel

Component	Metric	Type I	Type II	Type III	Type IV
Capability	Degree and type of operations capability	Physical / chemical and biological treatment, activated sludge, nutrient removal, tertiary filtration, gaseous chlorination, membranes, UV, dewatering and biosolids handling	Physical / chemical and biological treatment, activated sludge, tertiary filtration, gaseous chlorination, dewatering and biosolids handling	Physical / chemical and biological treatment, liquid chlorination, and dewatering	Septic systems, trickling filtration, sand filtration, biological lagoons and constructed wetlands
Personnel	Total persons	3	3	3	1-2
Team Composition	Team member capabilities for operation of processes indicated	1 Lead operator 2 Operators	1 Lead operator 2 Operators	1 Lead operator 2 Operators	1 Lead operator 0 – 1 Operator
Vehicles and Heavy Equipment	Number and type of vehicles and heavy equipment	1 Light-duty vehicle preferred	1 Light-duty vehicle preferred	1 Light-duty vehicle preferred	1 Light-duty vehicle preferred
Other Equipment	Other specific equipment	Monitoring Equipment	Monitoring Equipment	Monitoring Equipment	Monitoring Equipment
Materials	As needed	Expendable supplies	Expendable supplies	Expendable supplies	Expendable supplies

These personnel are responsible for the operation of all types of wastewater treatment facilities, regardless of size, with various systems, conveyance facilities, treatment plants and pump stations. Pump and lift station repairs are addressed as a separate team. Requestor should specify treatment processes used and in which expertise is needed, as well as any materials that should be provided by the responders. Equipment for monitoring and testing of the process should be provided by the responder unless confirmed that requestor can supply. Schematics of piping and valving shall be provided by the requestor. Operators can be provided in any agreed-upon quantity, with a minimum of two.

Specific types of facilities and processes in need of operation: _____

Specific equipment or materials that should be provided by responders: _____

Specific control systems used: Electronic _____ Pneumatic _____ Hydraulic _____ Facility capacity (MGD): _____

RESOURCE: WASTEWATER LAB SUPPORT PERSONNEL
AWWA April 2008

Category: Public Works and Engineering (ESF 3) Subcategory: Water and Wastewater Kind: X Personnel

Component	Metric	Type I	Type II	Type III	Type IV
Capability	Wastewater laboratory analysis	Chemist capable of running wet chemistry and nutrient analyses	Lab technician capable of running BOD, solids, fecal coliform, total coliform and E-coli analyses	NA	NA
Personnel	Total persons	1	1	NA	NA
Team Composition	Team member capabilities for work indicated	1 Wastewater lab chemist	1 Wastewater lab technician	NA	NA
Vehicles and Heavy Equipment	Number and type of vehicles and heavy equipment	Light-duty vehicle preferred	Light-duty vehicle preferred	NA	NA
Other Equipment	Other specific equipment	NA	NA	NA	NA
Materials	As needed	NA	NA	NA	NA

Comments and Definitions: : Requestor should check condition of laboratory and make an equipment assessment before requesting wastewater lab support personnel.

**RESOURCE: WASTEWATER LIFT AND PUMP STATIONS DAMAGE ASSESSMENT, REPAIR AND START-UP TEAM
AWWA April 2008**

Category: Public Works and Engineering (ESF 3) Subcategory: Water and Wastewater Kind: X Team

Component	Metric	Type I	Type II	Type III	Type IV
Capability	Degree and type of repair and start-up capability	Screw, submersible, wetwell / drywell and vertical-turbine solids-handling pumps greater than 400 HP	Screw, submersible, wetwell / drywell, vertical-turbine solids-handling pumps and suction-lift pumps 26 – 400 HP	Submersible, suction-lift, grinder, LPP, vacuum and STEP pumps, 25 HP or smaller	Components of Type I – III Teams
Ideal Team Size	Total persons	4	4	2	1-2
Team Composition	Team member capabilities for assessments and repairs indicated	1 Qualified mechanic 1 Qualified electrician 2 Repair technicians (mechanic or electrician serves as team leader)	1 Qualified mechanic 1 Qualified electrician 2 Repair technicians (mechanic or electrician serves as team leader)	1 Qualified mechanic 1 Qualified electrician 2 Repair technicians (mechanic or electrician serves as team leader)	Any portion of other types that can be provided
Vehicles and Heavy Equipment	Number and type of vehicles and heavy equipment	1 or 2 Heavy-duty 4X4 pick-up trucks or equivalent, one with equipment boom 1 30-ton+ crane preferred	1 or 2 Heavy-duty 4X4 pick-up trucks or equivalent, one with equipment boom	1 or 2 Heavy-duty 4X4 pick-up trucks or equivalent, one with equipment boom	Any portion of other types that can be provided
Other Equipment	Other specific equipment	Necessary tools and equipment	Necessary tools and equipment	Necessary tools and equipment	Any portion of other types that can be provided
Materials	As needed for repairs indicated	Necessary materials as indicated	Necessary materials as indicated	Necessary materials as indicated	NA

Comments and Definitions: This team is responsible for the assessment and repair of all types of wastewater lift station and pump facilities, regardless of size, including conveyance facilities, treatment plants and pump stations, excluding structural and similar scale repairs. Requestor should specify types of pump facilities in need of assessment and repair in which expertise is needed, as well as any materials that should be provided by the responder. Major materials provided by requestor or others.

Specific types of pump facilities in need of assessment and repair: _____

Specific materials that should be provided by responders: _____

Specific control systems used: Electronic _____ Pneumatic _____ Hydraulic _____ Facility capacity (MGD): _____

Maximum pump voltages: 4160 _____ 480 _____

RESOURCE: WASTEWATER SAMPLING AND FIELD ANALYSIS TEAM

AWWA April 2008

Category: Public Works and Engineering (ESF 3) Subcategory: Water and Wastewater Kind: X Team

Component	Metric	Type I	Type II	Type III	Type IV
Capability	Wastewater collection and stream sampling and field analysis	Capability of samples for BOD, solids, fecal coliform, total coliform and E-coli analyses, and field analyses where possible	NA	NA	Support only
Ideal Team Size	Total persons	2	NA	NA	1-2
Team Composition	Team member capabilities for work indicated	1 Sampling technician 1 Sampling assistant	NA	NA	Any portion of Type I that can be provided
Vehicles and Heavy Equipment	Number and type of vehicles and heavy equipment	1 Heavy-duty 4X4 SUV or pick-up truck with enclosed bed	NA		Any portion of Type I that can be provided
Other Equipment	Other specific equipment	Necessary tools and field lab testing equipment	NA	NA	Any portion of Type I that can be provided
Materials	As needed	Bottles and other materials for two weeks of sampling work	NA	NA	NA

Comments and Definitions: Ice to be provided by requestor or others, as needed. HAZMAT should be used where samples may be hazardous.

RESOURCE: SEWER MAINS DAMAGE ASSESSMENT AND REPAIR TEAM

AWWA April 2008

Category: Public Works and Engineering (ESF 3) Subcategory: Water and Wastewater Kind: X Team

Component	Metric	Type I	Type II	Type III	Type IV
Capability	Diameter (in.) of mains repaired	Greater than 24"	14" – 24"	Up to 12"	Components of Type I – III Teams
Ideal Team Size	Total persons	8	7 - 8	5 - 7	1-5
Team Composition	Team member capabilities for assessments and repairs indicated	1 Team leader 1 Excavator operator 1 Backhoe-loader operator 2 Tandem dump truck drivers 1 Lead repair technician 2 Repair technicians	1 Team leader 1 Excavator operator 1 Backhoe-loader operator 1 - 2 Tandem dump truck drivers 1 Lead repair technician 2 Repair technicians	1 Team leader 1 Backhoe-loader operator 1 - 2 Tandem dump truck drivers 1 Lead repair technician 1 - 2 Repair technicians	Any portion of Type III that can be provided
Vehicles and Heavy Equipment	Number and type of vehicles and heavy equipment	1 Large track excavator 1 Backhoe-loader 2 Tandem dump trucks 1 Team / equipment tk. 1 Supervisor's light truck	1 Large track excavator 1 Backhoe-loader 2 Tandem dump trucks 1 Team / equipment tk. 1 Supervisor's light truck	1 Backhoe-loader or medium track excavator 2 Tandem Dump trucks 1 Team / equipment tk. 1 Supervisor's light truck	Any portion of Type III that can be provided
Other Equipment	Other specific equipment	Necessary pneumatic and hand tools for repairs indicated	Necessary pneumatic and hand tools for repairs indicated	Necessary pneumatic and hand tools for repairs indicated	Any portion of Type III that can be provided
Materials	As needed for repairs indicated	Repair couplings, sleeves and associated materials and expendable supplies for specified number of assorted sewer main repairs	Repair couplings, sleeves and asstd. mtrls. and expendable supplies for specified nbr. of asstd. sewer main repairs	Repair couplings, sleeves and asstd. mtrls. and expendable supplies for specified nbr. of asstd. sewer main repairs	NA

This team is responsible for the assessment and repair of all types of wastewater collection, stormwater collection, and reclaim water distribution facilities, including gravity mains, force mains, aerial mains, and manholes, including excavation through backfill. Pump repairs are addressed as a separate team. Requestor should specify facilities in which repair expertise is needed, specific main materials and size ranges in need of repair, and typical depth of facilities and soil conditions, as well as any materials that should be provided by the responders. Requestor to provide plans showing main locations and coordinate notification of "call-before-you dig" service used in region. Traffic control considerations to be coordinated by requestor and responding utility. Pipe provided by requestor or others.

Specific types of facilities in need of assessment and repair: _____ Main sizes and materials: _____

Typical depth range: _____ Soil conditions: _____

RESOURCE: SEWER MAINS AND MANHOLES CLEANING AND SSO / CSO CLEAN-UP TEAM
AWWA April 2008

Category: Public Works and Engineering (ESF 3) Subcategory: Water and Wastewater Kind: X Team

Component	Metric	Type I	Type II	Type III	Type IV
Capability	Degree and type of cleaning capability	Sewer jet / vac truck cleaning	Sewer jet truck or trailer cleaning	Sewer power rod truck cleaning	SSO / CSO clean-up team
Ideal Team Size	Total persons	2	2	2	2 - 6
Team Composition	Team member capabilities for work indicated	1 Lead sewer cleaning technician 1 Sewer cleaning technician	1 Lead sewer cleaning technician 1 Sewer cleaning technician	1 Lead sewer cleaning technician 1 Sewer cleaning technician	1 Team leader 1 Backhoe operator 1 – 4 Utility workers
Vehicles and Heavy Equipment	Number and type of vehicles and heavy equipment	1 Jet / vac truck	1 Jet truck or jet trailer with suitable tow vehicle	1 Sewer power rod truck	1 4 X 4 heavy duty pick-up 1 backhoe / loader
Other Equipment	Other specific equipment	Necessary tools and equipment	Necessary tools and equipment	Necessary tools and equipment	Necessary rakes, shovels and other small tools
Materials	As needed	Expendable supplies	Expendable supplies	Expendable supplies	Lime and straw

Comments and Definitions: Requestor should indicate degree of main and manhole cleaning needed. Requestor to identify areas for cleaning and disposal site(s), and provide system maps to responder.

RESOURCE: WATER / WASTEWATER EMERGENCY AND GENERAL MANAGEMENT SUPPORT PERSONNEL
AWWA April 2008

Category: Public Works and Engineering (ESF 3) Subcategory: Water and Wastewater Kind: X Personnel

Component	Metric	Type I	Type II	Type III	Type IV
Capability	Ability to step into utility management role to supplement on-site personnel	Utility emergency management support team	Utility general manager / director / deputy director or operations level of capability	Individual with experience in Water / Wastewater disaster response and recovery work documentation	Components of Type I – III
Personnel	Total persons	2 - 4	1 - 2	1	1
Team Composition	Team member capabilities for work indicated	Qualified incident commander and individuals experienced in other NIMS / ICS roles	1 – 2 Qualified water / wastewater agency or operations manager	Individual with ability to provide assistance with record-keeping to meet FEMA reimbursement requirements	Components of Type I – III
Vehicles and Heavy Equipment	Number and type of vehicles and heavy equipment	1 – 2 Light-duty vehicles preferred	1 Light duty vehicle preferred	1 Light duty vehicle preferred	NA
Other Equipment	Other specific equipment	2- 4 Laptop computers	1 – 2 Laptop computers	Laptop computer	NA
Materials	As needed	NA	NA	NA	NA

Comments and Definitions: These personnel resource types will often be provided in combination with one-another. While personnel capable of fulfilling Type III will often be provided in groups of more than one, they are not in a team framework and are defined in the individual mode. These personnel may often be provided by a responder in support of other resources provided. When command personnel are provided by a responder, authorities and responsibilities must be clearly established with the requestor.

RESOURCE: WATER / WASTEWATER PUBLIC INFORMATION OFFICER (PIO) PERSONNEL
AWWA April 2008

Category: Public Works and Engineering (ESF 3) Subcategory: Water and Wastewater Kind: X Personnel

Component	Metric	Type I	Type II	Type III	Type IV
Capability	Draft press releases, coordinate media briefings and inquiries	Draft press releases, coordinate media briefings, public notices and inquiries	Assist with drafting press releases, coordinate media briefings, public notices and inquiries	Assist with language translation.	NA
Personnel	Total persons	1 - 2	1	1	NA
Team Composition	Team member capabilities for work indicated	1 – 2 Qualified Public Information Officer, NIMS and crisis communications training and message mapping experience preferred	Qualified assistant Public Information Officer, NIMS and crisis communications training and message mapping experience preferred	Technical specialist with foreign language capability	NA
Vehicles and Heavy Equipment	Number and type of vehicles and heavy equipment	1 Light-duty vehicle preferred	1 Light-duty vehicle preferred	1 Light-duty vehicle preferred	NA
Other Equipment	Other specific equipment	Laptop computer	Laptop computer	Laptop computer	NA
Materials	As needed	Draft message templates and other PIO resources that can be provided	Draft message templates and other PIO resources that can be provided	Translate draft message templates and other PIO resources that can be provided into preferred language other than English	NA

Comments and Definitions: Requestor should indicate any multi-lingual requirements.

**RESOURCE: WATER AND SEWER MAIN, VALVE AND MANHOLE LOCATING AND SEWER CCTV TEAM
AWWA April 2008**

Category: Public Works and Engineering (ESF 3) Subcategory: Water and Wastewater Kind: X Team

Component	Metric	Type I	Type II	Type III	Type IV
Capability	Main and valve locating	Locating of water mains, sewer mains, valves and manholes	Sewer mains CCTV	NA	Components of Type I Team
Personnel	Total persons	2	2	NA	1-2
Team Composition	Team member capabilities for work indicated	2 Locating technicians	1 Sewer CCTV lead technician 1 Sewer CCTV technician	NA	Any portion of Type I that can be provided
Vehicles and Heavy Equipment	Number and type of vehicles and heavy equipment	2 Light-duty pick-up trucks	1 Sewer CCTV truck	NA	Any portion of Type I that can be provided
Other Equipment	Other specific equipment	Locating equipment GPS equipment, if possible	Necessary CCTV support equipment	NA	Any portion of Type I that can be provided
Materials	As needed	Marking Paint and expendable supplies	As needed	NA	NA

Comments and Definitions: Requestor should provide system maps and indicate type of mains in need of location. GPS coordinate information should be provided when possible. These teams may often be provided by a responder in support of other resources provided. Locators may be provided in any quantity, with a minimum of two. CCTV team may need to be supported by a jet / vac truck team. Supervision and coordination by a representative of the requestor is strongly preferred.

Types of main materials to be located: _____

RESOURCE: WATER / WASTEWATER HEALTH AND SAFETY AND ENVIRONMENTAL COMPLIANCE PERSONNEL
AWWA April 2008

Category: Public Works and Engineering (ESF 3) Subcategory: Water and Wastewater Kind: X Personnel

Component	Metric	Type I	Type II	Type III	Type IV
Capability	Ability to provide necessary compliance indicated and oversight of on-site personnel and activities	Qualified Water / Wastewater health and safety compliance officer	Qualified Water / Wastewater environmental compliance officer	NA	NA
Personnel	Total persons	1	1	NA	NA
Team Composition	Team member capabilities for work indicated	1 Qualified water / wastewater health and safety compliance officer, trained in HAZWOPER and other applicable requirements	1 Qualified water / wastewater environmental compliance officer, with expertise in SDWA, CWA, CAA, RCRA, and other CFR 49	NA	NA
Vehicles and Heavy Equipment	Number and type of vehicles and heavy equipment	1 Light-duty vehicle	1 Light-duty vehicle	NA	NA
Other Equipment	Other specific equipment	Laptop computer	Laptop computer	NA	NA
Materials	As needed	Health and safety regulatory resource materials	Health and safety regulatory resource materials	NA	NA

Comments and Definitions: If possible, a Health and Safety Officer should be provided with responding mutual aid and assistance teams. This ensures familiarity with the responders and their practices.

RESOURCE: WATER / WASTEWATER ELECTRICAL GENERATOR AND DIRECT DRIVE TEAMS

AWWA April 2008

Category: Public Works and Engineering (ESF 3) Subcategory: Water and Wastewater Kind: X Team

Component	Metric	Type I	Type II	Type III	Type IV
Capability	Capable of providing, delivering, and connecting generator of KW indicated	125 KW or greater, based upon FEMA generator resource types (See Appendix I)	Less than 125 KW	Direct drive units	Support in starting generators where already existing
Ideal Team Size	Total persons	2	2	2	1 - 2
Team Composition	Team member capabilities for work indicated	1 Qualified electrician 1 Electrician's assistant	1 Qualified electrician 1 Electrician's assistant	1 Qualified mechanic 1 Mechanic's assistant	1 Qualified electrician or mechanic 1 - 2 Electrician's or mechanic's assistant
Vehicles and Heavy Equipment	Number and type of vehicles and heavy equipment	1 Truck capable of pulling generator(s) delivered	1 Truck capable of pulling generator(s) delivered	1 Truck capable of pulling drive unit(s) delivered	1 Pick-up truck
Other Equipment	Other specific equipment	Necessary tools for generator connection	Necessary tools for generator connection	Necessary tools for drive unit connection	Necessary tools for generator start-up
Materials	As needed	Mining cables and other necessary materials for generator connection	Mining cables and other necessary materials for generator connection	Necessary materials for drive unit connection	Materials that may be necessary for generator start-up

Comments and Definitions: Requestor must specify KW and voltage of generators needed or existing. Requestor should indicate type of connection provisions in place. Trailer-mounted generators are preferred to skid-mounted. Portable switch-gear preferred. Refueling arrangements must be established. RPM of direct drive units must be specified.

Volts: 480 _____ 4160 _____ RPM: 540 _____ 1100 _____

RESOURCE: CONTROL SYSTEMS, SCADA AND RADIO SYSTEMS REPAIR AND RESTORATION TEAM
AWWA April 2008

Category: Public Works and Engineering (ESF 3) Subcategory: Water and Wastewater Kind: X Team

Component	Metric	Type I	Type II	Type III	Type IV
Capability	Capable of repairing and restoring SCADA and radio telemetry systems	Capable of repairing and restoring plant control systems, PLC, etc.	Capable of repairing and restoring remote SCADA and radio telemetry systems	Capable of repairing radio communications systems	Capable of repairing and replacing in-ground communications and control cables
Ideal Team Size	Total persons	2	2 – 4	1 - 2	2 - 4
Team Composition	Team member capabilities for repairs indicated	1 Qualified plant controls technician 1 Support technician	1 Qualified plant controls technician 1 – 3 Support technicians	1 Qualified plant controls technician 0 - 1 Support technician	1 Team leader 1 – 3 utility workers
Vehicles and Heavy Equipment	Number and type of vehicles and heavy equipment	1 Pick-up truck	1 - 2 Heavy-duty pick-up trucks 1 bucket truck	1 Heavy-duty pick-up truck 1 bucket truck	1 Heavy-duty pick-up truck 1 small backhoe or trencher preferred
Other Equipment	Other specific equipment	Necessary tools for plant controls and PLC repairs, fluke meter, 4-20 milliamp signal generator, laptop computer with serial port	Necessary tools for SCADA repairs, fluke meter, 4-20 milliamp signal generator, laptop computer with serial port	Necessary tools for SCADA repairs, laptop computer with serial port	Necessary tools for cable repairs, hand-digging tools
Materials	As needed for repairs indicated	Necessary general materials for plant controls and PLC repairs	Necessary general materials for SCADA repairs	Necessary general materials for radio system repairs	Necessary general materials for cable repairs

Comments and Definitions: SCADA = Supervisory Control and Data Acquisition. PLC = Programmable Logic Controllers. Requestors should indicate types of controls, PLC, SCADA, telemetry equipment, radios and network cable (e.g., fiber optic, copper) used. Major repair components to be provided by requestors or others, unless otherwise arranged.

RESOURCE: VEHICLE AND EQUIPMENT MAINTENANCE, REPAIR AND FUELING TEAMS
AWWA April 2008

Category: Public Works and Engineering (ESF 3) Subcategory: Water and Wastewater Kind: X Team

Component	Metric	Type I	Type II	Type III	Type IV
Capability	Degree and type of repair capability	Heavy field repairs of vehicles and heavy equipment	Light repairs, lubrication and other preventive maintenance of vehicles and light equipment	Tire repairs	Vehicle and equipment fueling
Ideal Team Size	Total persons	2	1 - 2	1 - 2	1
Team Composition	Team member capabilities for work indicated	1 Qualified mechanic 1 Vehicle repair technician	1 Qualified mechanic 0 – 1 Mechanic's assistant	1 Tire mechanic 0 – 1 Tire mechanic's assistant	1 fuel truck operator
Vehicles and Heavy Equipment	Number and type of vehicles and heavy equipment	1 1-Ton or larger truck with equipment boom	1 Heavy duty pick-up truck	1 Tire truck or equivalent	1 Fuel truck with capacity for at least 100 gallons of gasoline and 100 gallons of diesel fuel
Other Equipment	Other specific equipment	Necessary tools and equipment	Necessary tools and equipment	Necessary tools and equipment	Any portion of other types that can be provided
Materials	As needed	Necessary materials for maintenance and repairs of known equipment	Necessary materials for maintenance and repairs of known equipment	Necessary materials for maintenance and repairs of known equipment	NA

Comments and Definitions: Type I, II and III teams may be used in conjunction with each other. These teams, especially the Type III tire repair team and Type IV fueling team, will often be provided in conjunction with other responding teams. Fuel truck to be initially provided full of fuels, other than that which may be needed in transit. Additional fuels to be provided by requestors or others.

RESOURCE: FACILITY ACCESS RESTORATION AND DEBRIS CLEARING TEAM
AWWA April 2008

Category: Public Works and Engineering (ESF 3) Subcategory: Water and Wastewater Kind: X Team

Component	Metric	Type I	Type II	Type III	Type IV
Capability	Clearing of debris and other measures to establish access to facilities	Heavy "cut and shove" clearing of vegetative and structural storm debris with personnel and heavy equipment	Light debris clearing by personnel only	General facility repairs	Components of Type I – III Teams
Ideal Team Size	Total persons	2 - 4	2+	2+	1-5
Team Composition	Team member capabilities for work indicated	1 Team leader 0 - 1 Backhoe-loader operator 1 – 2 Chain saw operators 0 - 2 Utility workers	1 Team leader 1+ Chain saw operator(s) or utility worker(s)	2+ Building maintenance mechanics with experience in repairs of doors, windows, etc.	Any portion of Type III that can be provided
Vehicles and Heavy Equipment	Number and type of vehicles and heavy equipment	1 Backhoe-loader 1 Team truck	1 Team truck	1 Team truck	Any portion of Type III that can be provided
Other Equipment	Other specific equipment	2 18"+-Bar chain saws and other necessary tools and equipment	2 18"+-Bar chain saws and other necessary tools and equipment	Necessary tools and equipment	Any portion of Type III that can be provided
Materials	As needed	NA	NA	NA	NA


Comments and Definitions: These teams can be used in various combinations. A Type III team can be used in support of various operations requiring bulk hauling, such as for hauling of spoil materials, stone, etc. This resource may also be provided by other public works agencies. Requestor should provide a representative to point out the location of debris-covered appurtenances to avoid accidental damage during debris clearing opera.

Appendix I Typed Equipment Resources

This appendix includes the FEMA typed resource definitions for equipment that is included in the teams typed in this manual. This is not a complete copy of the FEMA definitions. Also included at the conclusion of this appendix are basic descriptions of some water sector-specific equipment resources not included in the FEMA definitions.

FEMA 508-7, Typed Resources - Public Works Resources (May 2005)

U.S. Department of Homeland Security
Federal Emergency Management Agency

RESOURCE: DUMP TRUCK-ON ROAD			
Category: Public Works and Engineering (ESF #3)			
Kind: Equipment			
Minimum Capabilities (Component)	Type I	Type II	Type III
Equipment	<p>Triple Axle DOT Class 8. GVW rating 80,000; Capacities: 16-20 yards of aggregate material and demolition debris; Diesel powered with choice of Manual or Automatic Transmission; Air Brakes; Limited off-road service; Medium to long haul. Wide turning radius; CDL license required</p>	<p>Tandem Axle DOT Class 8. GVW rating 60,000; Capacities: 10-14 yards of aggregate material and demolition debris; Diesel powered with choice of Manual or Automatic Transmission; Air Brakes; Limited off-road service; Medium to long haul; Wide turning radius. CDL license required</p>	<p>Single Axle DOT Class 7. GVW rating 32,000; Capacities: 5-8 yards of aggregate material and demolition debris; Diesel or gas powered with choice of Manual or Automatic Transmission; Air or Hydraulic Brakes; Limited off-road service; Short to medium haul; Short turning radius; CDL license required</p>
<p>Comments:</p> <div style="text-align: center;">  </div>			
National Mutual Aid & Resource Management Initiative			Public Works

RESOURCE: BACKHOE LOADER

Category: Public Works and Engineering (ESF #3)

Kind: Equipment

Minimum Capabilities (Component)	Minimum Capabilities (Metric)	Type I	Type II	Type III	Type IV
Example		446B – Cat 3114T Diesel	420D – Cat 3054T Diesel	420D IT with Quick Coupler – Cat 3054T Diesel	416D – Cat 3054B Diesel, Gross Power
Gross Power	kw/hp	82/110	66/88	66/88	58/77
Operating Weight (max)	lbs	19,630	15,772	15,772	15,257
Dig Depth Standard Stick	ft/in	14’5”	14’5”	14’5”	14’5”
Extended Stick	ft/in	18’1”	18’1”	18’1”	18’1”
Loading Height	ft/in	11’10”	11’10”	11’10”	11’10”
Loading Reach	ft/in	5’8”	5’8”	5’8”	5’8”
Bucket Capacity	yd ³	1.25	1.25	1.25	1.25
Dump Height (max angle)	ft/in	8’4”	8’4”	8’1”	8’4”
Dump Reach (max angle)	ft/in	2’9”	2’9”	2’10”	2’9”
Lift Capacity (full height)	lbs	6,385	6,385	(w/QC) 6,970	5,292
Bucket Breakout Force	lbs	10,131	10,131	10,564	8,524
Fuel Capacity	gal	34	34	34	34

Comments:

Caterpillar is used as an example only.
420 IT tools include the following:

Backhoe Work Tools: Buckets - Standard, Heavy Duty, Heavy Duty Rock, High Capacity, Coral, Ditch Cleaning; Hydraulic Hammer; Vibratory Plate Compactor; Ripper.

Loader Work Tools: Buckets - General Purpose, Multipurpose, Side Dump, Light Material, Penetration; Loader Forks; Material Handling Arm; Angle Blade; Broom; Rake; Asphalt Cutter; Bale Spear.



446B



420D



420D IT



416D

National Mutual Aid & Resource Management Initiative

Public Works

RESOURCE: GENERATOR

Category: Public Works and Engineering (ESF #3)

Kind: Equipment

Minimum Capabilities (Component)	Minimum Capabilities (Metric)	Type I	Type II	Type III	Type IV	Type V
Equipment	KW	<p>XQ2000 2000 kW Generator; Sound attenuated; Trailer mounted (semi tractor); Up to 3015 Amps@ 480 Volts, 3 Phase, 60 Hz; Dry weight 89,000 lbs; Fuel tank capacity 1250 Gallons; Dimensions 40' Long x 8' Wide x 13'.5" Tall; Potential application example– Single or multiple units for: power plants, heavy industrial facility, high-rise buildings; Setup time (cables from generator to main power feed estimated at 5+ hours)</p>	<p>XQ1500 1500 kW Generator, Sound attenuated; Trailer mounted (semi tractor); Up to 2260 Amps@ 480 Volts, 3 Phase, 60 Hz; Dry weight 59,000 lbs; Fuel tank capacity 1250 Gallons; Dimensions 40' Long x 8' Wide x 13'.5" Tall; Potential application example– Single or multiple units for: universities, hospitals, medium to large manufacturing facility; Setup time (cables from generator to main power feed estimated at 5+ hours)</p>	<p>XQ600 600 kW Generator; Sound attenuated; Trailer mounted (semi tractor); Up to 2080 Amps@ 208 Volts, 3 Phase, 60 Hz / up to 902 Amps@ 480 Volts 3 Phase, 60 Hz; Dry weight 37,000 lbs; Fuel tank capacity 660 Gallons; Dimensions 40' Long x 8' Wide x 13'.5" Tall; Potential application examples: Retail stores, HVAC system power, multi-story/buildings, light manufacturing, apartment buildings; Setup time (cables from generator to main power feed estimated at 3+ hours)</p>	<p>XQ400 400 kW Generator; Sound attenuated; Trailer mounted (pull behind); Multi-voltage distribution panel; Up to 1390 Amps @ 208 Volts, 3 Phase, 60 Hz/up to 602 Amps@ 480 Volts 3 Phase, 60 Hz; Dry weight 16,800 lbs; Fuel tank capacity 470 Gallons; Dimensions 23' Long x 8'.5" Wide x 11' Tall; Potential application example: Large office building, public schools, libraries, and communication equipment. Setup time (cables from generator to main power feed estimated at 2+ hours)</p>	<p>XQ125 125 kW Generator; Sound attenuated; Trailer mounted (pull behind); Multi-voltage distribution panel; Up to 433 Amps@ 208 Volts, 3 Phase, 60 Hz / up to 188 Amps @ 480 Volts 3 Phase, 60 Hz; Dry weight 10,610 lbs; Fuel tank capacity 223 Gallons; Dimensions 18'.5" Long x 6'.5" Wide x 9' Tall; Potential application example: Small office building, emergency mobile trailers & operations, restaurants. Setup time (cables from generator to main power feed estimated at 1 hour)</p>

Comments:

2500-gallon external fuel tanks available. Fuel consumption is estimated at 7% of the kW usage (example: fuel consumption on a 100 kW Generator operating at full load is approximately 7 gallons per hour). Technicians are available for hookup and monitoring of equipment. 4/0 Quick connect (Cam-Lock) cable is available for tie-in to power feed, rated at 400 Amps each cable. Fuel supply, and/or fuel vendors available. Power distribution equipment available. Transformers & Load Banks are available.



XQ2000



XQ1500



XQ600-400



XQ125



XQ125

National Mutual Aid & Resource Management Initiative

Public Works

RESOURCE: HYDRAULIC TRUCK CRANES

Category: Public Works and Engineering (ESF #3)

Kind: Equipment; Personnel; Vehicle

Minimum Capabilities (Component)	Minimum Capabilities (Metric)	Type I	Type II	Type III
Equipment and Personnel	Tons	75-70 Crane type with boom reach of 190-170 feet; With jib add approx. 30 feet; Self-propelled/driven over the road; Operator furnished; Setup time minimal; Counter weight transported by tractor-trailer; No other special transport permit required	65-60 Crane type with boom reach of 160-150 feet; With jib add approx. 30 feet; Self-propelled/driven over the road; Operator furnished; Setup time minimal and ready for use; No special transport permit required	40-35 Crane type with boom reach of 140 feet; With jib add approx. 30 feet; Self-propelled/driven over the road; Operator furnished; Setup time minimal and ready for use; No special transport permit required

Comments:

Check with your local/State transportation and law enforcement organizations to determine mobilization requirements.



National Mutual Aid & Resource Management Initiative

Public Works

RESOURCE: HYDRAULIC EXCAVATOR (LARGE MASS EXCAVATION 13 CY TO 3 CY BUCKETS)

Category: Public Works and Engineering (ESF #3)

Kind: Equipment

Minimum Capabilities (Component)	Minimum Capabilities (Metric)	Type I	Type II	Type III
Equipment	Cubic Yard	5130B ME Net HP (800); Operating Weight-Std. (399000 lb); Bucket Capacity-HDR (13.7 yd3); Max. Digging Depth (27.6 ft); Max. Reach at Ground Level (48.9 ft); Max. Dump Height (29.8 ft); Max. Drawbar Pull (196000); Fuel Tank (987 gal); Overall Width (21.7 ft); Height To Top Of Cab (21.4 ft); Track Length-Std. (23.8 ft) Mining Machine	385B-L Net HP (513); Operating Weight-Std. (183940 lb); Operating Weight-Long (L) Undercarriage (189770 lb); Bucket Capacities-HDR (2.5 yd3) - General Purpose GP (5.5 yd3); Max. Drawbar Pull (132810); Fuel Tank (328 gal); Max. Digging Depth (38.7 ft); Max. Reach at Ground Level (56.11 ft); Max. Dump Height (37.11 ft); Minimum Loading Height (11.1 ft); Overall Width (12.7 ft); Height To Top Of Cab (12 ft); Track Length-Std. (19.2 ft)	375-L, 365B-L Series II In respective order of size; Net HP (428-404); Operating Weight-Std. (173100 lb-149000 lb); Operating Weight-Long (L) Undercarriage (179800 lb-150200 lb); Bucket Capacities-HDR (2.5 yd3-1.6 yd3) - General Purpose GP (5 yd3); Max. Drawbar Pull (126300 -103820); Fuel Tank (261gal-211 gal); Max. Digging Depth (37.7ft-31 ft); Max. Reach at Ground Level (52ft-46 ft); Max. Dump Height (33.11ft-30 ft); Overall Width (13.6ft-11.6ft); Height To Top Of Cab (12.2ft-11.11ft); Track Length-Std. (20.10 ft-19.3ft)

Comments:

To better match bucket needs to material conditions, contact dealer and or owner. The reference to “L” means Long Undercarriage. Mobilization may require more than one truck-trailer.



5130B



385 B & L



375 & L



365B L Series II

National Mutual Aid & Resource Management Initiative

Public Works

RESOURCE: HYDRAULIC EXCAVATOR (MEDIUM MASS EXCAVATION 4 CY TO 1.85 CY BUCKETS)

Category: Public Works and Engineering (ESF #3)

Kind: Equipment

Minimum Capabilities (Component)	Minimum Capabilities (Metric)	Type I	Type II	Type III	Type IV
Equipment	Cubic Yard	345B L Series II Net HP (321); Operating Weight-Long Undercarriage (111180 lb for UHD-97940lb); Bucket Capacity-HDR (3 yd3); Bucket Capacities General Purpose GP (4 yd3); Max. Digging Depth (23.7 ft); Max. Reach at Ground Level (37.2 ft); Max. Loading Height (22.6 ft); Max. Drawbar Pull (74380 lb); Fuel Tank (190 gal); Overall Width (11.5 ft); Height To Top Of Cab (15.1 ft); Track Length-Std. (17.7 ft)	330C - 325C L In respective order of size; Net HP (247-188); Operating Weight-Long Undercarriage (77400 lb-63100 lb); Bucket Capacities-HDR (2.12 yd3-1.75 yd3); Bucket Capacities General Purpose GP (3 yd3-2.5 yd3); Max. Drawbar Pull (66094 lb-54853 lb); Fuel Tank (163 gal-132 gal); Max. Digging Depth (24.3 ft-23.3 ft); Max. Reach at Ground Level (35.10 ft-34.6 ft); Max. Loading Height (23.7 ft-23.4 ft); Minimum Loading Height (8.11 ft-8 ft); Overall Width (11.3 ft-11.1 ft); Height To Top Of Cab (11 ft-10.11 ft); Track Length-Std. (16.6 ft-15.3 ft)	322C L - 320C L **Note In respective order of size; Net HP (168-138); Operating Weight-Long Undercarriage; (53600 lb-46300 lb); Bucket Capacities-HDR (2.12 yd3-1 yd3) - General Purpose GP (3 yd3-1.75 yd3); Max. Drawbar Pull (50132 -44040); Fuel Tank (132 gal-106 gal); Max. Digging Depth (22 ft-22 ft); Max. Reach at Ground Level (32.10 ft-32.4 ft); Max. Loading Height (22.1ft-21.4 ft); Overall Width (11.6ft-9.6 ft); Height To Top Of Cab (10.9-9.11ft); Track Length-Std. (15.3 ft-13.4ft)	321B L- 320C L Utility Models **Note In respective order of size; Net HP (168-138); Operating Weight-Long Undercarriage; (50927 lb-50700 lb); Max. Drawbar Pull (44063 -44040); Fuel Tank (66 gal-gal); Bucket capacities and other handling performances will be similar to 320 C L.

Comments:

To better match bucket needs to material conditions, contact dealer and or owner. The reference to “L” means Long Undercarriage. Mobilization may require more than one truck w/trailer. Boom type will change reach, digging depth, and handling performances.

**Note: 320C L has two versions for difference applications. Utility model has smaller radius.



345B L Series II UHD



345B L Series II



330C-325C L



322C-320C L



321B-320C L

National Mutual Aid & Resource Management Initiative

Public Works

Additional Equipment Definitions

This Appendix section provides basic descriptions and definitions for specialized water sector equipment that is identified on some of the teams described in this manual and is not detailed in FEMA resource descriptions.

Sewer Jet / Vac Truck

A sewer jet / vac truck, also sometimes referred to as a “combination truck”, is a truck with a clean water tank of at least 750 gallons and the capability for jetting sewer mains with a stream of water of at least 10 gpm at 2,000 psi and for vacuuming material from the mains. For the purpose of this manual, a large jet / vac truck is one with a debris body of 10 cubic yards or greater and a small jet / vac truck is one with a debris body of less than 10 cubic yards.



Large sewer jet / vac truck



Small sewer jet / vac truck

Sewer Jet Truck

A sewer jet truck is a truck with a clean water tank of at least 500 gallons and the capability for jetting sewer mains with a stream of water of at least 10 gpm at 2,000 psi. Sewer jet units can also be trailer-mounted.



Sewer jet truck

Sewer Power Rod Truck

A sewer power rod truck is a truck equipped with at least 500' of continuous or sectional rods of at least 5/16" diameter, driven by a motor of at least 10 hp, for clearing sewer main obstructions. Sewer power rod units may also be trailer-mounted.



Sewer power rod truck

Water Valve Operating Truck

A water valve operating truck is a truck with a mechanical valve operator capable of turning water valves at least 5 rpm with a minimum of 1,000 foot-pounds of torque. A water valve vacuum unit provides at least 250 cfm of vacuum through a 2" hose and wand, through a filter and into a debris body of at least 10 cubic feet. Either the valve operator or the vacuum unit may also be trailer-mounted.



Water valve truck with vacuum unit

Appendix II EMAC REQ-A Form

EMAC REQ-A INSTRUCTIONS:

Each "Tab" of this Excel Worksheet is a Section of the EMAC REQ-A. Please read the instructions carefully and be sure you understand the process (which closely mirrors the EMAC on-line REQ-A process within the EMAC Operations System (EOS)).

Section I: Completed by Requesting State

- 1 A-Team member (In state or out of state) completes Section I of the EMAC REQ-A Form.
- 2 If completed on-line, the A-Team member must certify that they have the EMAC Authorized Representative signature a
- 3 The REQ-A Section I page must now be put into EOS (either by scanning and uploading or by faxing to 1-888-883-4450).

Section II: Completed by the Assisting State

- 1 Complete all parts of the EMAC Form REQ-A Section II (including detailed cost estimate).
- 2 Representative in the Assisting State. The signature section is found at the top of the REQ-A.
- 3 The Excel sheet does contain forumlas for the cost estimate section. If a formula lost within the form, either download a new form or seek help to repair unless you know how to do so on your own.
- 4 The "print area" set in this Section cuts the personnel off on the first page (page 2 of the printed Section). To include more personnel in the printout, simply adjust the print area on that page.
- 5 The REQ-A Section II page must now be put into EOS (either by scanning and uploading or by faxing to 1-888-883-4450).

Section III: Completed by the Requesting State

- 1 After reviewing Section II (completed by the Assisting State) and reviewing it to the initial request (in Section I), the EMAC Authorized Representative in the Requesting State signs Section III of the EMAC REQ-A.
- 2 The REQ-A Section II page must now be put into EOS (either by scanning and uploading or by faxing to 1-888-883-4450).

Amendments:

- When either party (Requesting State or Assisting State) deems it necessary to amend the REQ-A, Section II and Section III must always be completed.
- If only the Requesting State is amending the REQ-A, all sections (Section I, Section II, and Section III) must be completed.
- Please follow all instructions given in each section (above).
- The amendment number - version of how many times it has been amended must be recorded in sequential number. Example: Amendment Number: 1, 2, 3, 4, etc.

For help with the REQ-A Form (paper or on-line - please contact Angela Copple - acopple@csg.org)

Emergency Management Assistance (EMAC)
 Interstate Mutual Aid Request for Assistance
 Form REQ-A, 2007



SECTION I: TO BE COMPLETED BY THE REQUESTING STATE						
Event Name:		State Mission #:				
Date:		EMAC #:				
Time:		From State of:				
REQ-A Contact Name:						
	Phone:		E-mail:			
Mission Type:	Pick Type:	If State:	Pick Discipline:	If NG:	Pick Status:	
Mission Assignment:						
Resources Needed:						
Mobilization:						
	Date Needed:		Time needed:	Pick hrs:	hrs	
Demobilization:						
	Date Released:		Time needed:	Pick hrs:	hrs	
Special Deployment Considerations:						
Working Conditions			Pick One:			
Living Conditions			Pick One:			
Work Location/Facilities: See EOC:			Pick One:			
Additional Conditions/Comments:						
Safety Concerns/Remarks:						
Resource Coordination Contact:		Name/Title:				
	Phone:		E-mail:			
Staging Area:		Location:				
	Address:					
Name of EMAC Authorized Representative:						
Signature of EMAC Authorized Representative with date:			Date:			

EXAMPLE ONLY

Emergency Management Assistance (EMAC)
Interstate Mutual Aid Request for Assistance
Form REQ-A, 2007



SECTION II: TO BE COMPLETED BY THE ASSISTING STATE					
The EMAC Authorized Signature below certifies that information contained herein is a mission estimate to be accepted or declined by the EMAC Requesting State.					
Name of EMAC Authorized Representative:					
Signature of EMAC Authorized Representative with date:				Date:	
Date:		Time:			
Event Name:		EMAC #:			
State Mission #:		Requesting State Tracking Number:			
REQ-A Contact Name:					
Phone:		E-mail:			
Mission Type:	Pick One:	If State:	Pick Discipline:	If NG:	Pick Status:
Mission Assignment:					
Resources Available:					
In-state Resource Point of Contact:					
Phone:		E-mail:			
Mobilization:					
Date Available:		Time needed:	Pick hrs:	hrs	
Demobilization:					
Date Released:		Time needed:	Pick hrs:	hrs	
COST ESTIMATE (details on subsequent pages):					
Total Cost Estimate:			Total Cost Estimate (Total from Excel sheet):	\$0.00	

EXAMPLE ONLY

**Emergency Management Assistance (EMAC)
Interstate Mutual Aid Request for Assistance
Form REQ-A, 2007**

Total Travel Costs:		\$0.00	
# of fuel consuming equipment:		# of non-fuel consuming equipment:	
Travel Costs:			
Personal Vehicle:		Vehicle Rental/Fuel/Mileage:	
Governmental Vehicle Costs:		Air Travel:	
Meals/tips:		Lodging:	
Notes/Comments:			

**EXAMPLE
ONLY**

**Emergency Management Assistance (EMAC)
Interstate Mutual Aid Request for Assistance
Form REQ-A, 2007**

Total Equipment Costs:	\$0.00
-------------------------------	---------------

Equipment Costs (insert lines as needed):	
Description:	
Cost:	
1	
2	
3	
4	
5	

Total Commodity Costs:	\$0.00
-------------------------------	---------------

Commodity Costs (insert lines as needed):	
Description:	
Cost:	
1	
2	
3	
4	
5	

Total Other Costs:	\$0.00
---------------------------	---------------

Other Costs (insert lines as needed):	
Description:	
Cost:	
1	
2	
3	
4	
5	

Total Personnel Costs:	\$0.00
-------------------------------	---------------

Enter Total # of Personnel on Mission::

Detail for Personnel costs (insert lines as needed):

Name:	Regular Salary Hourly Rate	Fringe Benefit Hourly Rate	# of Regular Hours worked per day	Overtime Salary Hourly Rate	Overtime Fringe Benefit Hourly Rate	# of Overtime Hours worked per day	# of Days on Mission	Total Daily Cost	Total Mission Cost
								#REF!	\$0.00
								#REF!	\$0.00
								#REF!	\$0.00
								#REF!	\$0.00
								#REF!	\$0.00
								#REF!	\$0.00
								#REF!	\$0.00

Emergency Management Assistance (EMAC)
 Interstate Mutual Aid Request for Assistance
 Form REQ-A, 2007



SECTION III: TO BE COMPLETED BY THE REQUESTING STATE			
Date:		Time:	
Event Name:		EMAC #:	
Requesting State Tracking Number:		Assisting State Tracking Number:	
Mission Assignment			
<p>The EMAC Authorized Signature below certifies that they have reviewed Section II submitted by the Assisting State and agree to the estimated mission costs and requirements. The mission is accepted.</p>			
Name of EMAC Authorized Representative:			
Signature of EMAC Authorized Representative with date:		Date:	
Date:		Time:	

EXAMPLE ONLY

**Appendix III Mutual Aid and Assistance Cost Estimate
Development Spreadsheet**

AWWA Resource Typing Manual - Mutual Assistance Cost Estimate Development Spreadsheet

(blue shaded boxes contain formulas and should not be typed in unless a change in the formula is needed)

1. TEAM/PERSONNEL/EQUIPMENT Requested¹:

Personnel (insert lines above subtotal as needed)	Position(s)	Regular Salary Hourly Rate	Fringe Benefit Hourly Rate	# of Regular Hours worked per day	Overtime Salary Hourly Rate	Fringe Benefit Overtime Hourly Rate	# of Overtime Hours Worked per day ²	# of Days on Mission	Total Daily Cost	Total Mission Cost
							12		\$0.00	\$0.00
							12		\$0.00	\$0.00
							12		\$0.00	\$0.00
							12		\$0.00	\$0.00
							12		\$0.00	\$0.00
							12		\$0.00	\$0.00
							12		\$0.00	\$0.00
							12		\$0.00	\$0.00
							12		\$0.00	\$0.00
							12		\$0.00	\$0.00
							12		\$0.00	\$0.00
							12		\$0.00	\$0.00
Subtotal:									\$0.00	\$0.00

Equipment (insert lines above subtotal as needed)	Item	Hourly Rate ³	No. of Hours	Total
				\$0.00
				\$0.00
				\$0.00
				\$0.00
				\$0.00
Subtotal:				\$0.00

Commodities/Materials (insert lines above subtotal as needed)	Item	Unit Cost	Quantity	Total
				\$0.00
				\$0.00
				\$0.00
				\$0.00
				\$0.00
Subtotal:				\$0.00

Other Costs ⁴ (insert lines above subtotal as needed)	Item	Unit Cost	Quantity	Total
				\$0.00
				\$0.00
				\$0.00
				\$0.00
				\$0.00
Subtotal:				\$0.00

Notes:

2. TRAVEL	Units	Description	Total
Lodging	\$/person/night		
Food	\$/day/person		
Personal Vehicle	# x miles x 0.0488/mile		
Government Vehicle	# x miles x 0.0488/mile		
Rental Vehicle	daily/weekly rate as applicable x duration		
Air Travel	\$/person/roundtrip		
Other Travel	as necessary		
Subtotal:			\$0.00

3. TOTAL EXPECTED DEPLOYMENT COST:	\$0.00

Footnotes:
¹ From requester, may be more than one and of different kind/type
² Assumes a 12-hour work day
³ Use FEMA rates if unknown
⁴ Items to Consider: Fuel for equipment, O&M for equipment

**Appendix IV Mutual Aid and Assistance Responders
Accommodations Checklist**

Mutual Aid and Assistance Responders Accommodations Checklist

Note: It must be recognized by all parties involved that accommodations in emergency mutual aid and assistance situations are highly variable and subject to change. Information on this form is provided in good faith and is non-binding. Responders should be as prepared as possible for self-sufficiency and changes in conditions.

Requestor Location / Utility: _____ **Incident:** _____

Comments:

Access

Staging or reporting location: _____

Recommended route into area: _____

An escort from the requestor will be necessary in order for responders to clear access check-points and reach the requestor:

Yes _____ No _____

The requestor will be able to provide that escort:

Yes _____ No _____

Comments: _____

Special documentation or credentials will be required in order for the responders to clear access check-points: Yes _____ No _____

Explain: _____

Curfews are in place: Yes _____ No _____

Explain: _____

Most street signs are in place: Yes _____ No _____

Requestor will be able to provide local maps: Yes _____ No _____

Requestor will be able to provide GPS coordinates: Yes _____ No _____

Requestor will be able to provide GPS units: Yes _____ No _____

Housing and Sanitation

Normal hotel / motel accommodations available:

Yes _____ No _____

To be arranged by: Requestor _____ Utility name: _____

Responder _____

To be paid for by: Requestor _____ Utility name: _____

Responder _____

Approximate distance from work location: _____ miles

Comments:

Temporary shelter provided by requestor or other assisting agencies:

Yes _____ No _____ Agency name: _____

Restrooms: Yes _____ No _____

Portable toilets: Yes _____ No _____

Showers: Yes _____ No _____

Beds or cots: Yes _____ No _____

Bedding provided: Yes _____ No _____

Climate controlled: Yes _____ No _____

Location: _____

Distance to staging area: _____

Distance to work location: _____

Comments:

Shelter (tents , campers, etc.) must be provided by responder:

Yes _____ No _____

Location provided: Yes _____ No _____

Hook-ups available: Water _____ Elect _____ Sewer _____

Sewer dump location available: Yes _____ No _____

Restrooms: Yes _____ No _____

Portable toilets: Yes _____ No _____

Showers: Yes _____ No _____

Portable generators permitted: Yes _____ No _____

Gasoline _____ Diesel fuel _____ available for generators

Comments:

Sanitation facilities at work location:

Restrooms with running water nearby: Yes _____ No _____

Portable toilets: Yes _____ No _____

Comments:

Expected temperature range (F): _____ Five-day weather forecast: _____

Long-range forecast: _____

Other housing and sanitation comments:

Food and Water

Restaurants available: Yes _____ No _____

Meals to be financially arranged by: Requestor _____ Responsible utility:

_____ Responder _____

Approximate distance from work location: _____ miles

Comments:

Meals provided by requestor: Yes _____ No _____

Provider name: _____

Comments:

Grocery stores open and stocked: Yes _____ No _____

Distance from work location: _____ miles

Open with limited stock: _____

Distance from work location: _____ miles

Comments:

Food must be provided by responders: _____

Refrigeration available: Yes _____ No _____

Cooking facilities available: Yes _____ No _____

Ice available: Yes _____ No _____

Provided by requestor: Yes _____ No _____

Available for purchase: Yes _____ No _____

Comments:

Running water available for drinking, bathing, etc.: Yes _____ No _____

Running water available for bathing, etc., only: Yes _____ No _____

Bottled water available: Yes _____ No _____

Provided by requestor _____ Available for purchase _____

No water available -- all water must be brought by responders _____

Comments:

Other food and water comments:

Employee Safety:

First aid services available: Yes _____ No _____

Paramedic / EMT services available: Yes _____ No _____

Trauma services available: Yes _____ No _____

Hospital services available: Yes _____ No _____

Comments:

Employee Safety (cont.):

Current inoculations required of responders:

Tetanus _____
Hep A _____
Hep B _____
Others: _____

Basic PPE always required of all responders

Basic PPE: hard hat, safety vest, safety shoes, appropriate boots,
appropriate gloves, raingear and eye and ear protection as needed
Chain saw operator PPE: add chaps

Special PPE recommended or required: _____

Other potential exposures or conditions: _____

Animal or insect hazards or nuisances present: _____

Injury reporting procedure: _____

Comments:

Psychological conditions anticipated:

Routine storm damage _____
Significant damage to properties _____
Significant loss of livestock _____
Significant loss of companion animals _____
Significant loss of life and/or human suffering _____
Finding of human corpses possible _____ probable _____
Psychological counseling provided: Yes _____ No _____
Comments:

Communications:

Voice Communications:

Normal telephone service available: Yes _____ No _____
Phones available: _____ Pay phones available: Yes _____ No _____
Cell phones operable: Yes _____ No _____ Limited coverage _____
Satellite telephones provided: Yes _____ No _____
Requestor will be able to provide responder teams with one two-way radio per
team: Yes _____ No _____
Radio frequency used: _____
Comments:

Data Communications:

Wired or wireless high-speed Internet access available: Yes _____ No _____
Dial-up Internet access available: Yes _____ No _____

Vehicular and Equipment Needs:

Requestors will provide or ensure availability of vehicle diesel fuel and gasoline

Utility name: _____

Available for purchase _____

Responders must bring own diesel fuel _____ and gasoline _____

In disasters involving structural debris on roadways:

Requestors will provide or ensure availability of tire repair services:

Yes _____ No _____

Utility name: _____

Commercially available at charge _____

Responders must bring own tire repair capabilities: Yes _____ No _____

Chain saw parts and repair services available: Yes _____ No _____

Provided by (agency name): _____

Commercially available at charge: Yes _____ No _____

Must be provided by responders: Yes _____ No _____

Comments:

Vehicle and heavy equipment services

Provided by requestor: Yes _____ No _____

Commercially available: Yes _____ No _____

Responders must bring own vehicle and heavy equipment repair capabilities: _____

Local businesses of relevance to responders that are not open:

Other Responders' Needs

Financial:

Banks open: Yes _____ No _____

Bank teller machines operational: Yes _____ No _____

Credit cards OK at most business establishments: Yes _____ No _____

Responders purchase orders likely accepted: Yes _____ No _____

Travelers' checks accepted: Yes _____ No _____

Cash required: Yes _____ No _____ Suggested amount: _____

Notable cash-related security issues, if any: _____

Coins needed for laundry machines, vending machines, etc. Yes _____ No _____

Comments:

Other Responders' Needs (cont.)

Laundry services available: Yes _____ No _____

Provided by requestor _____ Coin laundry services available _____

Comments:

Other comments:

Form Completed By: **Name:** _____

Signature: _____

Title / Role: _____

Agency: _____

Date: _____