Large Water System Emergency Response Plan Outline:

Guidance to Assist Community Water Systems in

Complying with the Public Health Security and

Bioterrorism Preparedness and Response Act of 2002

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Purpose: Title IV of the Public Health Security and Bioterrorism Preparedness and Response Act, Public Law 107-188, requires drinking water facilities serving populations of more than 3,300 to perform vulnerability assessments and to prepare an Emergency Response Plan that incorporates the results of the vulnerability assessment. Developing an emergency response plan can take a lot of time and effort. The purpose of this Emergency Response Plan (ERP) outline is to make the job easier and help create a plan that works for your water system. This outline is intended for use by large water utility systems due to their complexity and detail. A modified ERP outline will be available for medium and small water utility systems in the near future.

It is important to note that the Water System ERP is a "living" document requiring periodic updates (i.e., at least annually or if there is a major change to the water utility system configuration). It should be maintained in a three ring binder notebook to accommodate revisions and appendices. The ERP document should be flexible and easily implemented during an emergency with the ability to use removable checklists.

This document provides guidance and recommendations to aid facilities in the preparation of Emergency Response Plans required under the Public Health Security and Bioterrorism and Response Act Act.   The Bioterrorism Act requires drinking water utilities to identify plans, procedures, and equipment that can be implemented or utilized in the event of a terrorist or intentional attack, or that can obviate or significantly lessen the impact of a terrorist or other intentional attack, on the utility. These are addressed in Sections IV and V of this outline. The Bioterrorism Act also calls for coordination with Local Emergency Planning Committees, which is addressed in Section I of this outline. It is understood that numerous states have specific emergency management planning guidelines as outlined in applicable statutes. Facilities must comply with both the federal and state laws. Certain state requirements may take precedence over this ERP outline. For example, the State of California has a Standardized Emergency Management System (SEMS) or Incident Command/Management System (ICS). Use of SEMS/ICS is mandatory in the State of California and applicable to other states.

Disclaimer: This outline is provided as guidance only. It contains nationally recognized standards on the types of information that should be contained in an emergency response plan. EPA recognizes that all of the sections may not be applicable to your system and all potential situations may not be identified in the outline. It is your responsibility to evaluate the potential vulnerabilities related to your system and determine the appropriate responses for your site. As site-specific needs dictate, this outline can be modified to meet your needs.

Water System Emergency Response Plan Outline

I.   Introduction

Safe and reliable drinking water is vital to every community. Emergency response planning is an essential part of managing a drinking water system. The introduction should identify the requirement to have a documented emergency response plan (ERP), the goal(s) of the plan (e.g., be able to quickly identify an emergency and initiate timely and effective response action, be able to quickly respond and repair damages to minimize system downtime), and how access to the plan is limited. Plans should be numbered for control. Recipients should sign and date a statement that includes their (1) ERP number, (2) agreement not to reproduce the ERP, and (3) they have read the ERP.

ERPs do not necessarily need to be one document. They may consist of an overview document, individual Emergency Action Procedures, check lists, additions to existing operations manuals, appendices, etc. There may be separate, more detailed plans for specific incidents. There may be plans that do not include particularly sensitive information and those that do. Existing applicable documents should be referenced in the ERP (e.g., chlorine Risk Management Program, contamination response).

II. Emergency Planning Process
    A.   Planning Partnerships

The planning process should include those parties who will need to help the utility in an emergency situation (e.g., first responders, law enforcement, public health officials, nearby utilities, local emergency planning committees, testing laboratories, etc.). Partnerships should track from the Water Utility Department up through local, state, regional, and federal agencies, as applicable and appropriate, and could also document compliance with governmental requirements.

    B.   General Emergency Response Policies, Procedures, Actions, Documents

A short synopsis of the overall emergency management structure, how other utility emergency response, contingency, and risk management plans fit into the ERP for water emergencies, and applicable polices, procedures, actions plans, and reference documents should be cited. Policies should include interconnect agreements with adjacent communities and just how the ERP may affect them. Policies should also address how to handle services to other public utility providers such as gas, electric, etc.

    C.   Scenarios

Use your Vulnerability Assessment (VA) findings to identify-specific emergency action steps required for response, recovery, and remediation for each of the five (5) incident types (if applicable) outlined in The Guidance for Water Utility Response, Recovery & Remediation Actions for Man-Made and /or Technological Emergencies*, Office of Water (4610M) EPA 810-R-02-001, April 2002 available at* www.epa.gov/safewater*. In this section, a short paragraph referencing the VA and findings should be provided. Specific details identifying vulnerabilities should not be included. In Section V of this plan, specific emergency actions procedures addressing each of the incident types should be addressed.*

III. Emergency Response Plan - Policies
    A.   System Specific Information

In an emergency, a water system needs to have basic information for system personnel and external parties such as law enforcement, emergency responders, repair contractors/vendors, the media, and others. The information needs to be clearly formatted and readily accessible so system staff can find and distribute it quickly to those who may be involved in responding to the emergency. Basic information that may be presented in the emergency response plan are the system's ID number, system name, system address or location, directions to the system, population served, number of service connections, system owner, and information about the person in charge of managing the emergency. Distribution maps, detailed plan drawings, site

plans, source water locations, and operations manuals may be attached to this plan as appendices or referenced.
1. PWS ID, Owner, Contact Person
2. Population served and service connections
3. System Components
   a) Pipes and constructed conveyances,
   b) Physical barriers,
   c) Isolation valves,
   d) Water collection, pretreatment, treatment, storage and distribution facilities,
   e) Electronic, computer, or other automated systems which are utilized by the public water system,
   f) Emergency power generators (onsite & portable),
   g) The use, storage, or handling of various chemicals, and
   h) The operation and maintenance of such system components.

B. Identification of Alternative Water Sources
   1. Amount of water needed for various durations
   2. Emergency water shipments
   3. Emergency water supply sources
   4. Identification of alternate storage and treatment sources
   5. Regional Aid Agreements (interconnections)
   Also consider in this section, a discussion of backup wells, adjacent water systems, certified bulk water haulers, etc.

C. Chain-of-Command Chart Developed in Coordination with Local Emergency Planning Committee (Internal and/or External Emergency Responders, or both)
   1. Contact Name
   2. Organization and Emergency Response Responsibility
   3. Telephone number(s) (hardwire, cell phones, faxes, e-mail)
   4. State 24-hour Emergency Communications Center Telephone

D. Communication Procedures: Who, What, When
   During most emergencies, it will be necessary to quickly notify a variety of parties both internal and external to the water utility. Using the Chain-of-Command Chart and all appropriate personnel from the lists below, indicate who activates the plan, the order in which notification occurs, and the members of the Emergency Response Team. All contact information should be available for routine updating and readily available. The following lists are not intended to be all inclusive— they should be adapted to your specific needs.
   1. Internal Notification Lists
      a) Utilities Dispatch
      b) Water Source Manager
      c) Water Treatment Manager
      d) Water Distribution Manager
      e) Facility Managers
      f) Chief Water Utility Engineer
      g) Director of Water Utility
      h) Data (IT) Manager
      i) Wastewater Treatment Plant
      j) Other
   2. Local Notification
      a) Head of local government (i.e., Mayor, City Manager, Chairman of Board, etc.)
      b) *Public Safety Officials—Fire, Local Law Enforcement (LLE), Police, EMS, Safety*
         If a malevolent act is suspected, LLE should be immediately notified and in turn will notify the FBI, if required. The FBI is the primary agency for investigating sabotage to water systems or terrorist incidents.
      c) Other Government Entities: Health, Schools, Parks, Finance, Electric, etc.

3. External Notification Lists
    a) State PWSS regulatory agency (or agencies)
    b) Regional water authority (where one exists)
    c) EPA
    d) State Police
    e) State Health Department (lab)
    f) Critical customers (Special considerations for hospitals, Federal, State and County government centers, etc.)
    g) Service/Mutual Aid
    h) Water Information Sharing and Analysis Center (ISAC)
    i) Residential and commercial customers not previously notified
4. Public/Media Notification: When and How to Communicate
    Effective communications is a key element of emergency response, and a media or communications plan is essential to good communications. Be prepared by organizing basic facts about the crisis and your water system. Develop key messages to use with the media that are clear, brief, and accurate. Make sure your messages are carefully planned and have been coordinated with local and state officials. Considerations should be given to establishing protocols for both field and office staff to respectfully defer questions to the utility spokesperson.

    Be prepared to list geographic boundaries of the affected area, (e.g. west of highway a, east of highway b, north of highway c and south of highway d to ensure the public clearly understands the system boundaries.)

E. Personnel Safety
This should provide direction as to how operations staff, emergency responders, and the public should respond to a potential toxic release (e.g., chlorine plume release from a water treatment plant or other chemical agents), including facility evacuation, personnel accountability, proper Personnel Protective Equipment as dictated by the Risk Management Program and Process Safety Management Plan, and whether the nearby public should be "in-place sheltered" or evacuated.

F. Equipment
The ERP should identify equipment that can obviate or significantly lessen the impact of terrorist attacks or other intentional actions on the public health and protect the safety and supply of drinking water provided to communities and individuals. The water utility should maintain an updated inventory of current equipment and repair parts for normal maintenance work.

Because of the potential for extensive or catastrophic damage that could result from a malevolent act, additional equipment sources should be identified for the acquisition and installation of equipment and repair parts in excess of normal usage. This should be based on the results of the specific scenarios and critical assets identified in the vulnerability assessment that could be destroyed. For example, numerous high-pressure pumps, specifically designed for the water utility, could potentially be destroyed. A certain number of "long-lead" procurement equipment should be inventoried and the vendor information for such unique and critical equipment maintained. In addition, mutual aid agreements with other utilities, and the equipment available under the agreement, should be addressed. Inventories of current equipment, repair parts, and associated vendors should be indicated under Item 29 "Equipment Needs/Maintenance of Equipment" of Section IV "Emergency Action Procedures".

G. Property Protection
A determination should be made as to what water system facilities should be immediately "locked down," specific access control procedures implemented, initial security perimeter established, a possible secondary malevolent event considered. The initial act may be a divisionary act.

H. Training, Exercises, and Drills
Emergency response training is essential. The purpose of the training program is to inform employees of what is expected of them during an emergency situation. The level of training on an ERP directly affects how well a utility's employees can respond to an emergency. This may take the form of orientation scenarios, table-top workshops, functional exercises, etc.

I. Assessment
To evaluate the overall ERP's effectiveness and to ensure that procedures and practices developed under the ERP are adequate and are being implemented, the water utility staff should audit the program on a periodic basis.

IV. Emergency Action Procedures (EAPs)
These are detailed procedures used in the event of an operational emergency or malevolent act. EAPs may be applicable across many different emergencies and are typically common core elements of the overall municipality ERP (e.g., responsibilities, notifications lists, security procedures etc.) and can be referenced.
   A. Event classification/severity of emergency
   B. Responsibilities of Emergency Director
   C. Responsibilities of Incident Commander
   D. Emergency Operations Center (EOC) activation
   E. Division internal communications and reporting
   F. External communications and notifications
   G. Emergency telephone list (division internal contacts)
   H. Emergency telephone list (off-site responders, agencies, state 24-hr emergency phone number, and others to be notified)
   I. Mutual Aid Agreements
   J. Contact list of available emergency contractor services/equipment
   K. Emergency equipment list (including inventory for each facility)
   L. Security and access control during emergencies
   M. Facility evacuation and lockdown and personnel accountability
   N. Treatment and transport of injured personnel (including chemical/biological exposure)
   O. Chemical records – to compare against historical results for base line
   P. List of available laboratories for emergency use
   Q. Emergency sampling and analysis (chemical/biological/radiological)
   R. Water use restrictions during emergencies
   S. Alternate temporary water supplies during emergencies
   T. Isolation plans for supply, treatment, storage, and distribution systems
   U. Mitigation plans for neutralizing, flushing, disinfecting tanks, pump stations, or distribution systems, including shock chlorination
   V. Protection of vital records during emergencies
   W. Record keeping and reporting (FEMA, OSHA, EPA, and other requirements) *(It is important to maintain accurate financial records of expenses associated with the emergency event for possible federal reimbursement.)*
   X. Emergency program training, drills/and tabletop exercises
   Y. Assessment of emergency management plan and procedures
   Z. Crime scene preservation training and plans
   AA. Communication Plans:
       1. Police
       2. Fire
       3. Local Government
       4. Media
       5. Etc.
   BB. Administration and logistics, including EOC, when established
   CC. Equipment needs/maintenance of equipment
   DD. Recovery and restoration of operations
   EE. Emergency event closeout and recovery

V. Incident-Specific Emergency Action Procedures (EAPs)

Incident-Specific EAPs are action procedures that identify specific steps in responding to an operational emergency or malevolent act. The Guidance for Water Utility Response, Recovery & Remediation Actions for Man-Made and/or Technological Emergencies, Office of Water (4610M) EPA 810-R-02-001, April 2002, *identifies three major steps in developing procedures—response, recovery, and remediation with a list of initial and recovery notifications required. "Response" refers to actions immediately following awareness of the incident, "recovery" refers to actions to bring the system back into operations, and "remediation" refers to long-term restoration actions. When developing an EAP for those incidents identified in Section V.2, the EAP must consider the impact of the incident on system elements and the potential impacts on upstream and downstream components of the incident location.* ***If during the VA process, a specific incident type was judged as not credible then it should be noted as to why it is not applicable to the ERP. If additional incident types were identified, then these should be included in the ERP.*** *For those that use the Sandia National Laboratory methodology (RAM-W) the adversary sequence diagrams provide incident-specific malevolent acts, which may fit under Section V.2.*

    A. General Response to Terrorist Threats (Other than Bomb Threat and Incident-Specific Threats)

    B. Incident-Specific Response to Man-Made or Technological Emergencies
- 1. Contamination Event (Articulated Threat with Unspecified Materials)
- 2. Contamination Threat at a Major Event
- 3. Notification from Health Officials of Potential Water Contamination
- 4. Intrusion through Supervisory Control and Data Acquisition (SCADA)

    C. Significant structural damage resulting from intentional act

    D. Customer complaints

    E. Severe weather response (snow, ice, temperature, lightning)

    F. Flood response

    G. Hurricane and/or tornado response

    H. Fire response

    I. Explosion response

    J. Major vehicle accident response

    K. Electrical power outage response

    L. Water supply interruption response

    M. Transportation accident response – barge, plane, train, semi-trailer/tanker

    N. Contaminated/tampered with water treatment chemicals

    O. Earthquakes response

    P. Disgruntled employees response (i.e., workplace violence)

    Q. Vandals response

    R. Bomb threat response

    S. Civil disturbance/riot/strike

    T. Armed intruder response

    U. Suspicious mail handling and reporting

    V. Hazardous chemical spill/release response (including Material Safety Data Sheets)

    W. Cyber-security/Supervisory Control and Data Acquisition (SCADA) system attack response (other than incident-specific, e.g., hacker)

VI. Next Steps

    A. Plan Review and Approval

    B. Practice and Plan to Update (as necessary; once every year recommended)
- 1. Training requirements
- 2. Who is responsible for conducting training, exercises, and emergency drills
- 3. Update and assessment requirements
- 4. Incident-specific exercises/drills

VII. Annexes:

    A. Facility and Location Information
- 1. Facility maps
- 2. Facility drawings

       3.   Facility descriptions/layout
       4.   Etc.

VIII. References and Links
    A.   Department of Homeland Security — http://www.dhs/gov/dhspublic
    B.   Environmental Protection Agency — http://www.epa.gov
    C.   The American Water Works Association (AWWA) — http://www.awwa.org
    D.   The Center for Disease Control and Prevention — http://www.bt.cdc.gov
    E.   Federal Emergency Management Agency – http://www.fema.gov
    F.   Local Emergency Planning Committees – http://www.epa.gov/ceppo/lepclist.htm