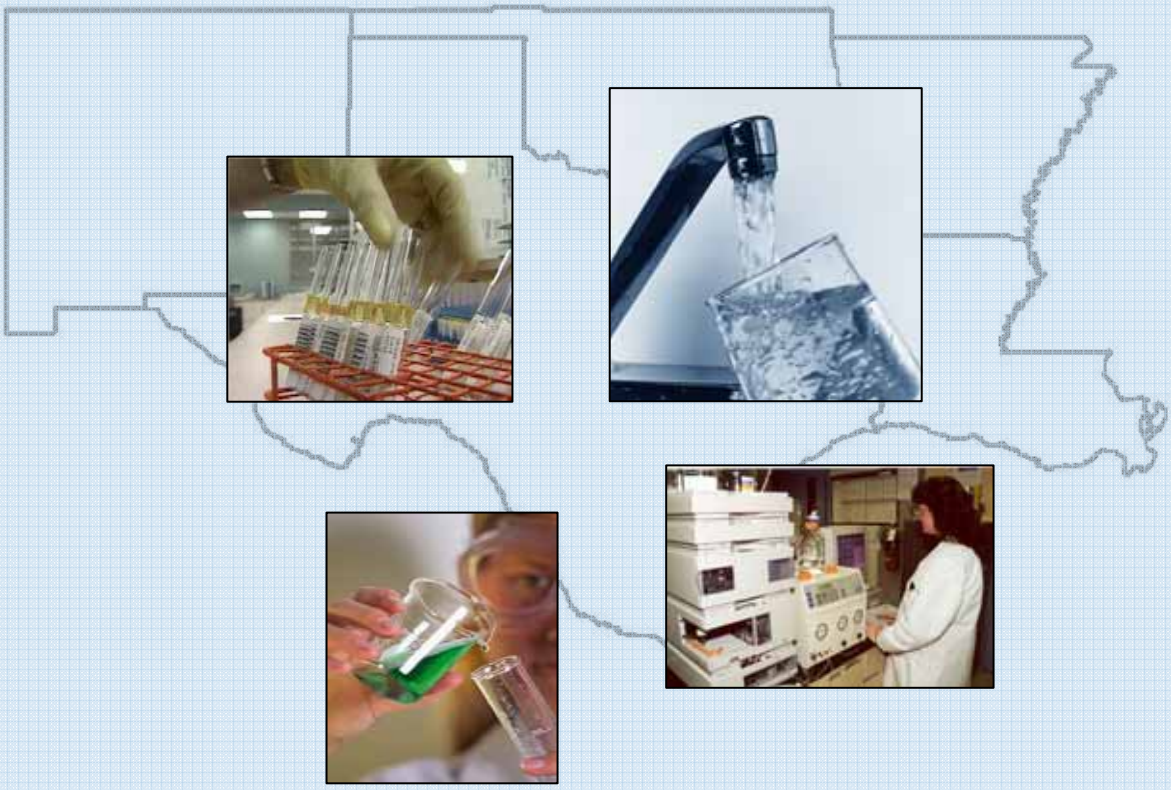
EPA Region 6
Laboratory Response Plan for Drinking Water

August 3, 2007



Regional Laboratory Response Plan Approval

The following laboratories and other supporting organizations in Region 6 have approved implementation of this plan:

Name	Role	Affiliation	Date

Table of Contents

List of Appendices i

Change Control ii

Executive Summary iii

Section 1.0 Introduction 1

1.1 Scope 1
1.2 Purpose 1
1.3 Application 1
1.4 Relationship to the Environmental Laboratory Response Network (eLRN) 2

Section 2.0 Laboratory Response Plan Elements 5

2.1 Laws and Authorities 5
2.2 Minimum Qualifications for Participation and Expectations 6
2.3 Resource Management 6
2.4 Form of Commitment to this Plan 6
2.5 Planning 6
2.6 Direction, Control, and Coordination 7
2.6.1 Roles 8
2.7 Quality Assurance Project Plans (QAPPs) 9
2.8 Communications and Notification 9

Section 3.0 Operations and Procedures 11

3.1 Sampling 11
3.2 Sample Brokerage, Transport, and Tracking 12
3.2.1 Sample Brokerage 12
3.2.2 Sample Transport 13
3.2.3 Sample Tracking 13
3.2.4 Health and Safety 13
3.3 Analysis 14
3.3.1 Basic Field/Safety Screening 14
3.3.2 Rapid Laboratory Analyses 15
3.3.3 Confirmatory Analyses 15
3.3.4 Sample Disposal 15
3.3.5 Quality Control 15
3.4 Data Review 16
3.5 Data Reporting and Validation 17
3.6 Secure Data Transfer and Storage 17
3.7 Record Keeping 17
3.8 Training 18
3.9 Exercises, Evaluations, and Close-out 18
3.10 Finance and Administration 18

List of Appendices

Appendix A.....List of Acronyms
Appendix B.....Communication Contact List
Appendix C.....Legal Authorities
Appendix D.....Environmental Laboratory Response Network
Appendix E.....Example Emergency Water Sample Collection Kit
Appendix F.....Structure of the Incident Command System
Appendix G.....Help Sheet for Requesting Analytical Services
Appendix H.....Example Laboratory Incident Communications Tracking Form
Appendix I.....Standard Analytical Methods
Appendix J.....Response Protocol Toolbox
Appendix K.....Example Chain of Custody Form
Appendix L.....Electronic Data Deliverables
Appendix M.....Example Field Testing Results Form
Appendix N.....Example Sample Documentation Form
Appendix O.....Close-out Action Checklist

Change Control

2

Section	Change	Changes Made By	Date

Executive Summary

This Regional Laboratory Response Plan for Drinking Water is intended to direct a joint laboratory response to an actual or suspected drinking water contamination event due to a natural disaster or terrorist event. This plan was developed by the following contributing organizations:

- EPA Region 6 Laboratory
- EPA Region 6 Criminal Investigation Division (CID)
- Arkansas Department of Health Public Health Laboratories
- Arkansas Department of Environmental Quality
- Louisiana Department of Health and Hospitals
- Louisiana Department of Environmental Quality
- New Mexico Environmental Department
- New Mexico Department of Health
- Oklahoma Department of Environmental Quality
- Oklahoma State Department of Health
- Texas Commission on Environmental Quality – Houston
- Texas Department of State Health Services Laboratory
- Texas National Guard – 6th Civil Support Team
- City of Houston Health Department
- City of Wichita Falls Water Purification Laboratory
- North Texas Municipal Water District
- San Antonio Metropolitan Health District

During a natural disaster or terrorist event affecting drinking water, a large number of environmental samples will be generated, likely overwhelming the capacity and/or capability of any individual laboratory to provide sufficient analytical support. This plan does not obligate the listed laboratories to provide support in such an event, but rather provides a blueprint for how able and willing EPA regional, drinking water utility, and state laboratories will work together to meet the analytical needs presented. This plan should not be construed to supplant or subordinate existing legal authorities, but rather should be used as general directions by and for the signatories.

Section 1.0 Introduction

1.1 Scope

The Region 6 Laboratory Response Plan (RLRP) for Drinking Water addresses drinking water contamination incidents that, due to their suspected cause or size, may require additional analytical support and a broader response than a typical utility, state, or federal laboratory can provide. The RLRP is intended for use in responses on a regional scale and smaller. The RLRP addresses actions to be taken by the responding laboratories early in an incident. Should the incident escalate, and an Incident Command Structure (ICS) be established, the plans and operations of the ICS may supplant those in this RLRP.

The scope of this RLRP is limited to drinking water only, with the long-term goal of extending it to other matrices. Similarly, the plan will apply to emergency response and threats to public health, with the recognition that the plan may be used in other scenarios (e.g., subsequent remediation and recovery, continuity of operations) if laboratories find it effective and appropriate. Support that may be provided under the plan includes:

- Analyses
- Consulting
- Data review
- Reagent exchange
- Sample storage
- Training
- Staff exchange (laboratories should be aware that legal issues, such as overtime and liability regulations, may limit this support)

Recommended roles and responsibilities of EPA, state, and utility laboratories during a response are described in the RLRP. However, these designations are not intended to supersede those dictated by Department and Agency statutory authorities.

1.2 Purpose

The purpose of the RLRP is to establish a comprehensive, regional approach to drinking water laboratory response across a spectrum of activities including preparedness, response, remediation, and recovery. The RLRP provides federal and state environmental and public health laboratories and drinking water utility laboratories with a structure for a systematic and coordinated regional response to a drinking water contamination incident. Implementation and maintenance of this plan also may identify capability gaps and opportunities for revision of existing standard operating procedures and emergency plans.

1.3 Application

The RLRP applies to the EPA regional, state, and local laboratories that may be requested to provide assistance or conduct analyses in actual or suspected drinking water contamination incidents. This includes the following laboratories in Region 6:

- EPA Region 6 Laboratory
- Arkansas Department of Health Public Health Laboratories
- Arkansas Department of Environmental Quality
- Louisiana Department of Health and Hospitals
- Louisiana Department of Environmental Quality
- New Mexico Environmental Department

- New Mexico Department of Health
- Oklahoma Department of Environmental Quality
- Oklahoma State Department of Health
- Texas Commission on Environmental Quality – Houston
- Texas Department of State Health Services Laboratory
- Texas National Guard - 6th Civil Support Team
- City of Houston Health Department
- City of Wichita Falls Water Purification Laboratory
- North Texas Municipal Water District
- San Antonio Metropolitan Health District

These laboratories will implement the plan by signing to it directly. The level of management that signs the plan will vary by laboratory. Utilities may implement this plan by signing on through the states (i.e., the primacy agencies). Commercial laboratories will not sign on to the plan, directly or indirectly. The RLRP may be updated as necessary by the member laboratories.

Additional parties with a stake in emergency response and drinking water analysis should also be made aware of the RLRP. To assist in the implementation of the RLRP, participating state laboratories should notify the following agencies and other groups of the existence of the RLRP:

- $ State homeland security
- $ State emergency response and management
- $ State public health
- $ State Department of Natural Resources (DNR), Department of Environmental Quality (DEQ), and Department of Agriculture
- $ Civil Support Teams (CSTs)
- $ State crime laboratories

In addition, the Region 6 drinking water program will notify:

- $ State drinking water primacy agencies
- $ Water industry associations
- $ Tribes

State drinking water primacy agencies will notify:

- Large water utilities

Water utilities will notify:

- Consecutive utilities
- Local public health, emergency response, and law enforcement

The Region 6 Laboratory will notify:

- On-scene coordinators (OSCs)

The Region 6 CID will notify:

- Federal Bureau of Investigation (FBI)

Arkansas Department of Health will notify:

- FDA regional laboratory

1.4 Relationship to the Environmental Laboratory Response Network (eLRN)

EPA is developing an environmental laboratory response network (eLRN) to address analytical capability and capacity for response to national emergencies. The eLRN will be coordinated with other national

laboratory networks through the Integrated Consortium of Laboratory Networks (ICLN). The eLRN will have the capability to analyze environmental samples for chemical, biological, and radiological agents, will include federal, state, and private sector laboratories, and will incorporate many of the network infrastructure elements (e.g., laboratory types, proficiency testing, standardized methods) found in the Centers for Disease Control and Prevention's (CDC) Laboratory Response Network (LRN), EPA's Water Laboratory Alliance (WLA), and the Food and Drug Administration's (FDA) Food Emergency Response Network (FERN). However, the eLRN is still in its formative stages and will not be fully operational until a later date. For more information on the eLRN, see Appendix D.

As part of the implementation of the WLA, EPA developed the RLRP template, which has been customized into this region-specific plan. The RLRP provides an immediate mechanism to coordinate local, state, and federal efforts to meet drinking water analytical needs that may result from an emergency. The creation and implementation of RLRPs will serve to inform the development of the eLRN, as well as the WLA, by providing a testing ground to address issues such as sample brokerage, analytical method selection, secure data transfer, and legal authority. As implementation of the WLA continues, the regional networks established by the RLRPs will form the basis of this nationwide effort.

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Section 2.0 Laboratory Response Plan Elements

This section of the RLRP addresses the following elements:

- Laws and authorities (Section 2.1)
- Minimum qualifications for participation and expectations (Section 2.2)
- Resource management (Section 2.3)
- Form of commitment to this plan (Section 2.4)
- Planning (Section 2.5)
- Direction, control, and coordination (Section 2.6)
- Quality assurance project plans (Section 2.7)
- Communications and notification (Section 2.8)

The general procedures below apply to laboratory support during response to a potential drinking water contamination incident. However, the applicability of any particular element of the plan will be dictated by the specifics of the incident.

2.1 Laws and Authorities

The RLRP is intended to comply with applicable legislation, regulations, directives, and policies. Applicable federal authorities include Section 103 of the Clean Air Act, 42 U.S.C. 7403, Section 104 of the Clean Water Act, 33 U.S.C. 1254, Section 8001 of the Solid Waste Disposal Act, 42 U.S.C. 6981, and the Safe Drinking Water Act, 42 U.S.C. 300f. These statutes provide EPA with authority to undertake cooperative efforts with states to promote the coordination and acceleration of research, studies, and other activities relating to the causes, effects, extent, prevention, reduction, and elimination of pollution.

EPA has a co-lead role with the Coast Guard in the National Response Plan under Emergency Support Function (ESF) #10, which specifies the federal response to an actual or potential release of oil or hazardous materials, including certain chemical, biological, and radiological substances considered weapons of mass destruction. In addition, EPA is designated as a support agency to the U.S. Army Corps of Engineers for water infrastructure and safety under ESF #3, which applies to all types of national incidents, including, but not limited to, hurricanes, earthquakes, and intentional acts. On January 30, 2004, the President signed Homeland Security Presidential Directive (HSPD) 9, *Defense of United States Agriculture and Food*, which directs EPA to develop comprehensive surveillance and monitoring systems for water quality, as well as nationwide laboratory networks for water quality that integrate existing state and federal laboratory resources. HSPD-9 recognizes that surveillance efforts and laboratory support must be coordinated with the states and the nation's 56,000 community water systems, and this Directive forms the basis for the development of the RLRP. In addition, the National Strategy for Homeland Security and HSPD-10 assign EPA responsibility for building laboratory diagnostic surge capacity for environmental samples during crises. A comprehensive list of federal legal authorities can be found in Appendix C.

Member laboratories must comply with all applicable state and local laws and authorities. Laboratories should be aware that differences between state codes may impact certain aspects of laboratory coordination (e.g., reimbursement, liability) and should act accordingly.

Federal and state legislations, regulations, codes, and authorities relevant to this RLRP will be reviewed by member laboratories when the RLRP is reviewed.

2.2 Minimum Qualifications for Participation and Expectations

The signatories to this plan include the drinking water utility and state environmental and public health laboratories in Arkansas, Louisiana, New Mexico, Oklahoma, and Texas as well as the EPA Region 6 Laboratory. All of these laboratories have demonstrated analytical qualifications through certification, accreditation (e.g., National Environmental Laboratory Accreditation Program), and/or membership in existing laboratory programs, including the LRN, FERN, and EPA drinking water laboratory certification program under the National Primary Drinking Water Regulations. Participation in this plan requires no additional capabilities beyond what is already required under these certifications and/or programs, the laboratory quality systems, and good laboratory practices. However, laboratories are expected to meet certain minimum requirements for participation, including participation in exercises and evaluations, and tracking of the laboratory's capabilities in the Environmental Laboratory Compendium (www.epa.gov/compendium).

2.3 Resource Management

Incidents may necessitate the use or provision of emergency sampling kits. It is recommended that member laboratories have access to sampling supplies listed in Appendix E, either through grab-and-go kits, a stock of supplies, or a contract with an outside group. Emergency response sampling kits are recommended to be pre-positioned in the field throughout the states. A kit may contain a complete set of containers and instructions suitable for collection of water samples with unknown contaminants and general instructions for collection of chemical, radiochemical, biological, and toxin samples and direction to appropriate member laboratories.

Laboratories will follow their existing procedures regarding resource inventory (e.g., reagents, disposables) for emergency use. In cases where they do not have the necessary standard or other inventory on hand, laboratories may meet the need by using comparable standards, accessing EPA assets, or requesting resources from another laboratory. A central repository of standards may be considered in the future.

2.4 Form of Commitment to this Plan

Laboratories will acknowledge and agree to the form and contents of this plan through the signature page at the front of this document. However, no formal commitment to accept samples, perform analyses, or otherwise participate in a response is made through this agreement. At any time during a response, laboratories have the ability to decline to provide support or to cease providing support for any reason. If a laboratory is no longer able to support an incident, every effort should be made by that laboratory, in coordination with the primary responding laboratory, to arrange transport of the samples to an alternative laboratory. Laboratories should acknowledge when agreeing to provide support that their level of commitment increases after samples have been shipped.

In the long-term, the member laboratories may develop an MOU to formalize this agreement. If so, the MOU should be developed using existing MOUs as a model. If an MOU is developed and signed as the vehicle for commitment to the RLRP, member laboratories should conduct a periodic review of the MOU when the RLRP is updated.

2.5 Planning

The RLRP addresses analytical demand during response to a natural disaster or terrorist incident affecting drinking water supplies. Coordination of likely activities through the RLRP can prevent duplication of effort, maximize efficiencies and effectiveness, improve communication, and increase analytical support. As part of laboratories' individual notification of other parties (see Section 1.3), laboratories need to

notify the administrators of existing local, state, and regional emergency response plans regarding the RLRP.

This plan should be reviewed after incidents and exercises and updated as necessary to ensure that it meets the needs of the member laboratories. The Region 6 Laboratory will be responsible for leading the review. The review should include consideration of the following:

- Lessons learned from recent incidents and exercises
- Regulatory changes
- New hazards or changes in existing hazards
- Major resource or organizational structure changes
- Infrastructure or laboratory guidance changes
- Funding or budget-level changes

2.6 Direction, Control, and Coordination

Direction, control, and coordination of collaborative laboratory support under this plan is based on the designation of a primary responding laboratory (PRL) and mutual support laboratory(ies) (MSLs). The PRL is the RLRP member first contacted for analytical support when a drinking water contamination event is suspected or known to have occurred. The analytical services requester (ASR) may be a first responder (e.g., police officer), Hazmat team leader, utility manager, state agency, or EPA or another federal agency. All RLRP members should be prepared to act as the PRL for a given incident. If the PRL does not have the capability and/or capacity to fully address the analytical needs presented by the drinking water incident, the PRL will coordinate with the ASR to identify and contact other RLRP member laboratories for assistance. Those RLRP members agreeing to provide assistance are referred to as MSLs. According to existing procedures and roles within each state, samples may be indirectly routed from the ASR to the PRL (or from the ASR to the MSL); entities should follow their standard operating procedures (SOPs) to direct samples to laboratories. Although information should flow from the ASR through the PRL to the MSL(s), communications will occur between all laboratories. Ultimately, the ASR will decide on the exact structure to be followed and may alter the lines of communication, sample brokerage, and data flow (e.g., the ASR may communicate directly with the MSLs, the ASR may direct sample brokerage). The ASR may choose not to designate a primary laboratory, but instead interface directly with all supporting laboratories. However, if this occurs, laboratories contacted to provide support should still coordinate with the ASR to ensure that the ASR is capable of coordinating all laboratory activities without the assistance of a primary laboratory.

Most agencies operate under an ICS during disasters and emergencies. The ICS is a standardized system used to organize all of the management functions necessary to respond to an emergency (the ICS is described in more detail in Appendix F). In routine emergencies or the early stages of a larger incident, management functions might be handled by one person, the Incident Commander (IC). As the incident develops and operational requirements warrant, an ICS may be developed and integrated to address the scope and size of the event and provide the IC with supporting staff according to a standardized, well-understood management structure.

The RLRP may be implemented at the initial response to an actual or potential contamination event, before the establishment of a formal ICS. After a formal ICS is established, the laboratory response structure and roles detailed in this plan may change, if dictated by the ICS, as ICS expands and more parties become involved. However, the RLRP will likely continue to be used to coordinate laboratory support under the ICS. Under a fully implemented ICS structure, the PRL will interface directly with the laboratory contact under the ICS operations group. Response to an Incident of National Significance will likely involve additional levels of complexity outside of the RLRP. In those situations, the approach will be incident-specific; however, the ICS may continue to use the structure and roles set up by the RLRP. The IC will serve until the requirements of the event move beyond the scope of the IC's expertise (e.g.,

contamination is confirmed, or remediation and recovery begins), at which time the IC will be elevated to an EPA On-Scene Coordinator (OSC) or another appropriate individual.

2.6.1 Roles

Before accepting a role or committing to provide support during an incident, laboratories should consider the following:

- Source and vehicle of funding/reimbursement
- Requirement (and reimbursement) of overtime
- Number of samples
- Duration of support
- Method(s) and analyte(s)
- Threat information and site characterization information
- Special requirements from the ASR, including:
    - Criminal evidentiary requirements
    - Sample storage
    - Changes to laboratory's existing procedures for data, sample storage, and disposal
    - Chain of custody
- Turnaround time
- Data reporting format
- Data reporting methods and security
- Liability
- Priority
- Adequate existing SOPs, levels of QA/QC (i.e., can a lab deviate from its normal procedures)
- Special data reporting information (e.g., reporting limits)
- Special sample handling, processing, or analytical instructions

Coordination of laboratory support under this RLRP in response to a drinking water emergency involves the following roles:

- **Analytical Services Requester (ASR) -** This is the primary point of contact who requests analytical assistance for a drinking water incident from a RLRP member. The ASR will typically be the IC for the incident, although the ASR may instead be the utility affected by the incident, or in some cases may be a state or federal agency.
- **Primary Responding Laboratory (PRL) -** The initial RLRP member laboratory contacted by the ASR.
- **Mutual Support Laboratory (MSL) -** RLRP member laboratory that may be engaged by the PRL, should the PRL's resources be insufficient at any point in the process to meet the analytical needs of the incident.

The PRL will have the following responsibilities:

- Decide on an initial analytical strategy based on Section 3.3. Depending on the information available from the ASR, the PRL may involve other laboratories in developing the strategy.
- Provide guidance and cautions to the ASR or sample collection staff using the Help Sheet for Requesting Analytical Support during Drinking Water Emergency Response in Appendix G. This step should minimize problems with sample preparation, shipment, and receipt. The PRL should provide the ASR or sample collection staff with specifications regarding minimum field data elements, sample container and preservation guidance, sample shipping conditions, and cautions regarding potential release of data in response to Freedom of Information Act requests or other legal authorities.
- As needed, work with the ASR to identify and engage RLRP member laboratories with appropriate expertise to function as MSLs in order to meet the analytical demands of the particular phase of the incident. For example, for potential biological contamination, LRN

laboratories may be engaged during the triage phase to perform pathogen analyses, rather than drinking water laboratories with no prior experience performing pathogen analyses. During the remedial investigation phase, several MSLs may be needed to provide adequate capacity to determine the extent of contamination by a particular chemical agent. MSL support to an incident could also include expert advice and peer review of data, in addition to analysis of samples.

- Act as a communications conduit to MSLs and the ASR as the situation develops and samples are collected. In this capacity, the PRL insures that samples are appropriately routed to the correct laboratory (sample brokerage).
- Coordinate collection of data from MSLs and report back to the ASR. Depending on the phase of an event, reports may be sent to the ASR as data from the PRL and/or MSL(s) become available. The PRL may also be responsible for consolidating and performing basic quality checks on MSL data prior to forwarding the data on to the ASR (discussed further in Section 3.5). The PRL is also responsible for obtaining special instructions from the ASR regarding data release and records maintenance, retention, and destruction.

The PRL will be contacted by the ASR when the need for analytical services develops. The PRL is charged with providing the ASR with technical assistance and testing services, informing the ASR of the RLRP, and, if the situation warrants, contacting MSLs for assistance. Before contacting another state for support, the laboratory should contact the Region 6 Laboratory to ensure that they remain informed as an event unfolds. The Region 6 Laboratory should ensure that the Region 6 drinking water unit is also aware of the incident. Laboratories should note that they have the right to refuse samples. A current list of each RLRP member laboratory with emergency contact information is included in Appendix B.

Depending on the evolution of the response to an incident, the PRL may determine that transferring this role to another laboratory is appropriate. If this transfer is necessary, the PRL will coordinate with the MSL(s) to identify the issues, responsibilities, and materials that would need to be addressed to implement this change. Effective communications will be necessary to ensure that all parties are aware of any change in roles. Region 6 may aid in this process.

MSLs have the following responsibilities:

- Rapidly assess available resources and provide timely realistic information on available support
- Meet commitments to the PRL (e.g., analyses, consulting, data review, reagent exchange, sample storage, training, and staff exchange)
- Consult with PRL as changes occur and analytical information becomes available

2.7 Quality Assurance Project Plans (QAPPs)

The Quality Assurance Project Plan (QAPP) is a document that describes specific analytical considerations that need to be addressed in the event that there is an emergency drinking water response. QAPPs typically include information on the background of the project, scope and application, project organization (which lists all key personnel, sampling, and analytical specifications), Quality Assurance (QA)/Quality Control (QC) checks, and method verification. Laboratories should be aware that although a QAPP is not required during emergency response, one will likely be necessary during remediation and recovery.

2.8 Communications and Notification

Laboratories will communicate according to their existing practices for internal communications, as well as the ASR/PRL/MSL structure (as described in Section 2.6). The communications contact list in Appendix B should be maintained with primary through tertiary contacts and used to identify the

appropriate contacts during an emergency. The Region 6 Laboratory will oversee maintenance of the communications contact list.

Communications among laboratories will generally be limited to the primary points of contact. However, the participants of this plan acknowledge that analyst-to-analyst discussions will also likely need to take place. In the event that the primary point of contact becomes unavailable at the PRL or MSLs, laboratories need to coordinate internally to ensure that back-up contacts are kept informed throughout the lifecycle of the event to avoid lapses in ongoing rapid support.

In some cases, communications may occur outside the structure chosen by the ASR. Although laboratories acknowledge that such communications may need to occur, laboratories should always notify the PRL and/or the ASR beforehand. All media requests will be directed to the ASR. Exceptions to the communication structure include:

- Freedom of Information Act requests or "sunshine" laws
- Program requirements (e.g., LRN)
- Management requests
- Political pressure (e.g., governor)
- Law enforcement (in some circumstances)

To maintain a complete record of communications during an incident, it is recommended that a timeline of the incident be developed as the incident evolves. Laboratories may use the Laboratory Incident Communications Tracking Form provided in Appendix H for this purpose.

Section 3.0 Operations and Procedures

This section of the plan addresses the following:

- Sampling (Section 3.1)
- Sample brokerage, transport, and tracking (Section 3.2)
- Analysis (Section 3.3)
- Internal data verification (Section 3.4)
- Data reporting and validation (Section 3.5)
- Data transfer and storage (Section 3.6)
- Record keeping (Section 3.7)
- Training (Section 3.8)
- Exercises, evaluation, and close-out (Section 3.9)
- Finance and administration (Section 3.10)

Laboratories should be familiar with all procedures detailed in the RLRP, and maintain appropriate standard operating procedures (SOPs) and good laboratory practices to perform these actions.

3.1 Sampling

During the triage stage of an event, upon initial contact by the ASR, the PRL will be responsible for gathering critical information pertaining to the nature of the samples to be collected. Sampling should be performed by personnel who have received training in sample collection procedures and the necessary health and safety training. At this time, the PRL may also provide guidance to the ASR or directly to the field personnel on sampling requirements (e.g., containers, holding times and conditions, chain of custody, health and safety considerations for sample collections, etc.) and to ensure correct packaging and shipping procedures are used from the field to the laboratory. However, the ASR will identify whether sample splits will be required. Samples should be screened onsite for radioactivity, CWA, etc. Provided the laboratory is a secure facility, no addition measures are necessary for sample security and integrity unless specifically requested by the ASR during this initial contact. Laboratories may utilize the Help Sheet for Requesting Analytical Support (Appendix G) to ensure required information is captured on the chain of custody form or otherwise provided with the samples.

Depending on the information available regarding the nature of the incident, the PRL may contact other RLRP member laboratories before providing specific sampling guidance. If the ASR elects to follow the PRL/MSL structure (as described in Section 2.6), the PRL is also responsible for passing along the critical information provided by the ASR about the nature of the samples to any MSLs that will assist with the analyses. In performing these functions, RLRP member laboratories may utilize the following resources:

- $ Help Sheet for Requesting Analytical Support (Appendix G) or comparable forms (e.g., those maintained by Arkansas Department of Health, City of Houston, Texas Department of Health Services)
- $ Standardized Analytical Methods (SAM) Companion documents (see Appendix I for more information)
- $ Response Protocol Toolbox (RPTB) (see Appendix J for more information)
- $ Example Field Testing Results Form (Appendix M)
- $ Example Sample Documentation Form (Appendix N)

If a laboratory maintains grab-and-go sampling kits (as described in Section 2.3), the appropriate forms above should be included in the kits.

3.2 Sample Brokerage, Transport, and Tracking

Based upon the initial field/safety screening and field investigation information available, the ASR will contact a member laboratory to serve as the PRL according to the procedures described in Section 2.6. If the PRL is unable to perform all of the necessary analyses, the PRL and the ASR will work to contact candidate MSLs to determine whether they have the capability and capacity to accept samples. Sample acceptance criteria should include consideration of the following:

- Chain of custody form
- Full sample documentation
- Prior approval (i.e., previous contact with the ASR or PRL)
- Field screening information (e.g., water quality parameters)
- Sample condition
    - Temperature
    - Preservation
    - Integrity (e.g., leaking)
    - Volume

3.2.1 Sample Brokerage

Based on the information from field/safety screening and field investigation, the ASR will distribute samples as directed by the PRL to RLRP member laboratories (the PRL and MSLs if necessary). The ASR should communicate with field samplers and laboratories and convey as much information as possible to all involved. Sample brokerage should be based on the following:

- **Hazard**. Selected laboratory(ies) must have the ability to assess the hazard an unknown sample may present, or when the hazard is known (based on field/safety screening or other site investigation information) process the sample in suitable engineering controls. Although "all-hazards" capability is not required to serve as the PRL, sample acceptance (or rejection) is at the discretion of the laboratory director. The following resources may be used to screen and/or analyze true unknown samples:
    - Civil Support Teams (CSTs)
    - Hazardous material (HAZMAT) teams
    - EPA assets (e.g., All Hazards Receipt Facility [AHRF])
    - Federal Bureau of Investigation (FBI)
    - CDC (through FBI or governor's office)
    - Department of Defense (DOD)
    - Capable participant laboratories (e.g., New Mexico Department of Health, Arkansas Department of Health)

- **Matrix.** Laboratories must have procedures for properly separating a contaminant from its matrix (e.g., extraction, digestion). Prepared samples may be sent to another member laboratory for analysis, if the laboratory has procedures for separating the contaminant from its matrix but does not have procedures to complete an analysis. However, shipment of extracts and digestates should be avoided if possible. Laboratories should be aware of the potential impacts on data quality if this occurs.

- **Contaminant type.** Laboratories must be able to perform appropriate methods for the contaminant or contaminant type tentatively characterized and/or identified during field investigation and screening. In addition, certain contaminants (e.g., select biological agents and chemical warfare agents) can only be handled by laboratories with appropriate containment and methods. For select agents, laboratories must be aware of and follow special considerations and restrictions.

- **Level of contamination.** While rapid methods may result in positive results if the contamination level is high, more sensitive methods and/or equipment may be required to detect very low levels of contamination.

In addition, the PRL should contact MSLs during the brokerage process to ensure that their stated capabilities and capacities are true at the given moment (e.g., that all instrumentation and personnel are available). During this process, laboratories will need to consider prioritization of existing and incoming samples requiring analysis (with consideration of sample aging, equipment recalibration, and other issues).

3.2.2 Sample Transport

Although it is not expected that member laboratories will need to ship samples, the PRL may need to advise the ASR on sample transport issues. As such, all laboratories must have personnel trained in U.S. Department of Transportation (DOT) and International Air Transport Association (IATA) regulations regarding the transfer of hazardous substances and environmental samples. These regulations, CFR 49 Parts 171 through 180 for DOT and the Dangerous Goods Regulations (DGR) for IATA, provide specific details regarding proper marking, labeling, use of placards, packaging and shipment of hazardous materials, substances and wastes, as well as regulatory exceptions. If a sample is deemed a credible threat by appropriate authorities, official transport of samples may need to be arranged.

The PRL can refer the ASR to information regarding the appropriate labeling and packaging of sample transport containers at: http://www.myregs.com/dotRSPA/. This link contains Hazmat tables. Additional information on transport procedures and training will eventually be available in the SAM companion documents (see Appendix I) from EPA's National Homeland Security Research Center (NHSRC).

3.2.3 Sample Tracking

Samples must be tracked from collection to disposal (cradle-to-grave). A chain of custody form will be initiated by laboratories as required by the situation. .This chain of custody form will follow the sample throughout the analytical process and should include information describing when the sample was collected, who has handled the sample, and who was in possession of the sample. Although RLRP members acknowledge that samplers will likely use their existing chain of custody forms, the laboratories should ensure that the chain of custody provided with samples includes the minimum elements necessary through use of the Help Sheet for Requesting Analytical Support (or a comparable form). An example chain of custody form is provided in Appendix K. In general, laboratories should contact the ASR (or sampler, if directed by the ASR) to clarify any problems that arise with chain of custody or sampling in general.

Should a responding laboratory split a sample, extract, or digestate to facilitate additional analyses at that laboratory or a supporting laboratory, laboratories should follow their existing procedures regarding assigning a sample ID number and the creation of a new chain of custody, unless otherwise instructed. Laboratories must ensure that the original chain of custody reflects this split. However, shipment of extracts and digestates should be avoided if possible.

Laboratories will follow their existing procedures regarding internal chain of custody unless specifically requested by the ASR. When internal chain of custody is required for intra-laboratory transfers, the following may satisfy this requirement (in descending order of comprehensiveness):

- Literal chain of custody
- Secure storage
- Secure facility

3.2.4 Health and Safety

As part of their Quality Systems, laboratories have existing procedures for health and safety. Laboratories should follow appropriate laboratory SOPs for health and safety and should use personal protective equipment appropriate to the risk presented by the samples. If funding becomes available in the future, more specific requirements for health and safety may be included.

3.3 Analysis

Before samples are transported to laboratories from the sampling site, the PRL will need to work with MSLs and the ASR to revise or develop an analytical approach. This analytical approach may be divided into three stages: Basic Field/Safety Screening (Section 3.3.1), Rapid Laboratory Analyses (Section 3.3.2), and Confirmatory Analyses (Section 3.3.3). SAM and/or Drinking Water Certification Manual methods will be used as the first resource for analytical method selection. If a laboratory is aware of another more appropriate method (e.g., if they are accredited in and routinely perform a different method), they should use that method in place of the method identified in SAM and/or the Drinking Water Certification Manual. Existing, practiced procedures should be used for unknown and all-hazard samples. As analyses are completed at the PRL or MSL laboratories, the PRL should review and report results to the ASR (Section 3.5)

3.3.1 Basic Field/Safety Screening

The earliest stage of analysis is Basic Field/Safety Screening. The purpose of this stage is to provide additional credible information for sample threat assessment, screen for high risk radioactive and chemical warfare agents to protect laboratory personnel and facilities, and to tentatively identify potential contaminants. This screen should occur in the field, if possible, and may include the target parameters, screening techniques, and methods listed in **Table 3-1**. Additional drinking water field/safety screening may include the following:

- YSI 556 Multiparameter probe (pH, conductivity, temperature, and DO)
- DR-2400 Portable Spectrophotometer (arsenic, cadmium, chromium, and nitrite)
- Rapid Toxicity Unit - ECLOX Water Test Kit (chemical toxicity, arsenic, organophosphate nerve/pesticide agents, etc.)
- Alexeter Ricin BioTest Strips
- Hach Portable Turbidimeter
- Hach Digital Titrator (Alkalinity Test Equipment)
- Smart 2 Colorimeter (free and total chlorine, ammonia, cyanide, and fluoride)
- Inspector EXP Digital Geiger Counter with External Pancake Probe (radiologicals)
- M272 Water Testing Kit (chemical warfare agents)

It is always incumbent upon the receiving laboratory to review Basic Field/Safety Screening data to assess the hazard a sample may represent before the sample is accepted. An example field testing results form is included in Appendix M. If field screening is inadequate, incomplete, or otherwise compromised, the sample must receive additional screening at the laboratory before acceptance. Safety screening at the laboratory is termed triage and is conducted in an All-Hazards Receipt Facility (AHRF) or equivalent high hazard laboratory area. However, no screening techniques for biological agents in drinking water are currently identified in SAM, and as such, unknown samples should be treated as if they are biologically active if available threat information suggests that they may pose such a threat. Laboratories should refer to Section 3.2.1 for resources that may be used to screen and/or analyze true unknown samples. Ultimately, sample acceptance (or rejection) is at the discretion of the laboratory director. If samples cannot be accepted at a laboratory, every effort should be made, in coordination with the PRL, to arrange transport of the samples to an alternative laboratory.

Table 3-1. Basic Field/Safety Screening[1]

Target Parameter	Example Methodology
Radiochemical	Ludlum Model 2241-3K
Cyanides	Hach Model DR890
pH/conductivity/ORP	Myron Ultrameter 6P
Chlorine residual	Hach Model DR890 Colorimeter
Volatile chemicals	ppbRAE plus photo ionization detector (PID)
VOC(PID), CO, H_2S, O_2	MultiRAE

Target Parameter	Example Methodology
Chemical Warfare Agents	M272 Water Testing Kit

[1]*The information in this table was developed by WSD in support of the Water Security Initiative pilot.*

3.3.2 Rapid Laboratory Analyses

In time-sensitive situations, laboratories may be requested by the ASR to perform rapid analyses. Examples of rapid laboratory analyses include 'shake and shoot' sample preparation for extractable organics, 'dilute and shoot' procedures for volatile organic analytes (VOAs), and real-time polymerase chain reaction (PCR) technology methods for biological agents. Until EPA provides national guidance on rapid analytical procedures, laboratories should follow their existing procedures regarding the use of rapid laboratory analyses. Many of these analytical approaches are in common use for other programs where rapid, indicative techniques may be suitable for producing data for real-time decision-making. However, the results of these rapid laboratory analyses need to be qualified as preliminary. For information on NHSRC's identification of rapid laboratory analyses, see Appendix I.

Member laboratories must document the QC performed for rapid laboratory analyses, as well as any limitations to the data. See Section 3.3.5 for minimum QC requirements.

3.3.3 Confirmatory Analyses

Confirmatory analyses are the "Gold Standard" methods used to verify the results of rapid laboratory analyses (if those methods have been employed). NHSRC has recently published SAM 3.0, which identifies the preferred confirmatory methods. As noted in Section 3.3, SAM and the Drinking Water Certification Manual will be used as the first resource for methods. However, if the laboratory is aware of another, more appropriate method (e.g., if they are certified in and routinely perform a different method), they should use that method. See Appendix I for additional information on SAM and Standardized Analytical Protocols (SAPs).

3.3.4 Sample Disposal

Disposal of samples should adhere to direction from the ASR. Law enforcement may have forensic needs that, depending on the nature of the emergency, may require laboratories to retain the sample as evidence. Alternatively, the ASR may request that samples be returned to the IC or to the organization requesting support (e.g., utility) for disposal during remediation and recovery. These requests should be made when a laboratory is first contacted to provide analytical support.

If disposal is to take place at the testing laboratory through normal procedures, consultation with the responsible Hazardous Waste Coordinator (for chemical agents) or Emergency Medical Services Coordinator (for biological agents) may be required due to the possibility of introducing a broader range of contaminants into the laboratory's waste stream than may normally be associated with its regular operations.

3.3.5 Quality Control

Quality control (QC) pertains to sample collection, sample analysis, and data reporting. Although sample collection is not under laboratory control, QC during this step is an important consideration during interpretation of analytical results (e.g., holding times, sample preservation, etc.). Laboratories should request sample QC information during preliminary discussions with the ASR.

The level or amount of QC necessary depends on the data quality objectives of the activity, which should be established through discussion between the ASR and the PRL prior to sample analyses (and preferably prior to sample collection). Laboratories should follow their existing procedures until EPA provides national guidance on minimum rapid analytical QC. When possible, laboratories should run analyses with more extensive or full QC (based on the needs of the requester) concurrent to rapid/screening

analyses performed with only minimum QC. To ensure confidence among member laboratories in results from supporting laboratoires, the following minimum QC must be performed for all targeted or "knowns" analyses (as opposed to an unknowns screen):

- Chemistry
  - Method blank
  - Instrument "tunes"
  - Continuing calibration verification (CCV)
  - Laboratory control spike (LCS)
- Radiochemical
  - Calibration check
  - Background check
  - Duplicate
  - Reagent blank (only for methods involving chemistry)
  - LCS (only for methods involving chemistry)
- Microbiology
  - Positive control
  - Negative control
  - Blank

In general, member laboratories must be prepared with calibrated instruments, proper standards, method-specific standard analytical procedures, and qualified and trained technicians. Laboratories also must be capable of rapidly analyzing samples and reporting data. MSLs should provide all quality control data to the PRL (or ASR, as appropriate), in addition to a narrative description of observations, tentative identifications, and QC deviations.

3.4 Data Review

During a response to a drinking water contamination incident, concerns for public health may decrease the time period available for initial laboratory analyses and corresponding data review. If a PRL or MSL is required by the ASR to provide data that have not undergone adequate internal review, the laboratory will follow their existing procedures for a release of incompletely reviewed data. These may include flagging the data as "Preliminary data that may be of limited quality" or "The laboratory needs to complete QA/QC review of these data before confirming their reliability". All data should be accompanied by documentation of the level of QA/QC performed.

Throughout the analytical process, frequent communication between the PRL and the ASR and between the PRL and the MSLs is necessary to clarify and negotiate the timeframe required for preliminary and confirmed data. These discussions should include specific expectations of the level of data verification that will occur within the given timeframe. In time-critical situations, data review may be abbreviated but must include at least a peer (sample-level) review.

When time is not an issue, each laboratory should follow their existing procedures for data review and approval. When a laboratory is contacted to perform analyses, the level of review required should be indicated, if special requirements are necessary. The overall data generation and reporting process may entail the following steps:

1. Data generation
2. Data reduction
3. Raw data package generation
4. Analyst review
5. Peer review
6. Final data package generation
7. QA review
8. Management sign off

9. Data release

3.5 Data Reporting and Validation

Under the RLRP, multiple laboratories will provide analytical support for a drinking water emergency. The preferred method for laboratory submission of analytical results is via an electronic data deliverable (EDD) that allows the use of automated data review tools (ADR) for verification of the results. A minimum set of data elements will be required for exchange of data; however, this requirement does not necessitate the change of current laboratory data management systems. These minimum elements need to incorporate at a minimum the results and QC data fields listed in Appendix L.

Based on discussions with the ASR, the PRL and/or an MSL may be asked to consolidate and verify basic data quality aspects of reported data. Alternatively, if the ASR is directly interfacing with all laboratories, the ASR or a designee may perform this function for data received from all laboratories. If the PRL or MSL takes on this function, the following information should be verified (also known as level 2a review):

1. Results are from the correct laboratory
2. Requested target analytes are reported
3. Requested target analyte result units are reported
4. Results below the required reporting limits are clearly identified
5. All requested methods (preparation, cleanup, and analytical) are performed
6. Holding times (e.g., from sampling date to extraction and extraction to analysis) are met
7. Method QC data [e.g., method blanks, surrogate recoveries, deuterated monitoring compound (DMC) recoveries, LCS recoveries, matrix spike, and matrix spike duplicate recoveries, trip blanks, rinsate blanks] are provided and linked to all field samples reported
8. Requested surrogate, DMC and LCS spike analytes have been added
9. Method QC data are within accepted limits

For the purposes of the RLRP, the ASR owns all analytical results.

3.6 Secure Data Transfer and Storage

Until a standardized mechanism for data reporting and transfer is adopted, methods for data transfer will be determined on an incident-specific basis. Available options include email of “flat files” or upload to the Region 6 QuickPlace portal.

Laboratories will follow existing procedures for data disposition and retention (e.g., maintenance of copies or originals).

3.7 Record Keeping

Laboratories should maintain all records and data needed for a third party to verify and reconstruct analytical results. Laboratories will inform the ASR that they will follow their existing procedures if specific guidance is not provided. These procedures include what records must be maintained (e.g., incident logs, chain of custody, LIMS reports, sample and analytical results), the timeframe for retention, and requirements for record destruction and sign-off. Similarly, laboratories should also follow existing procedures for criminal evidence requirements, unless the ASR indicates that specific requirements need to be met when first contacting the PRL. When a criminal investigation is involved, laboratories should retain records until law enforcement or prosecution signs off on disposal. The laboratory contacts will also function as contacts for records maintenance. If an incident-specific portal is established for central record maintenance, records should be maintained using that site.

Laboratories participating in emergency response should be aware that not all records may be exempt from Freedom of Information Act requests or other legal authorities. When necessary, the PRL should direct the MSLs on how to respond to such requests based on the guidance provided by the ASR when analytical support was first requested.

3.8 Training

The objective of training is to create awareness and enhance the skills required to plan and execute analytical support during a drinking water emergency. Member laboratories should ensure that all personnel have received appropriate training to carry out the role of PRL or MSL and must have personnel trained in DOT and IATA shipping requirements. Primary through tertiary contacts must have ICS training at the 100- and 200-level. Training and familiarity with the RLRP, as well as analytical methods, SOPs for target agents, safety, and HAZWOPR training are also important and recommended. If training in new methods becomes available, the Region 6 Laboratory is available to host centralized training. Training records should be maintained for all current personal.

3.9 Exercises, Evaluations, and Close-out

The member laboratories will evaluate the RLRP and their procedures and capabilities through periodic reviews, post-incident reports, and exercises.

Exercises designed to test the RLRP may include, but are not limited to, table tops, functional exercises, or exercises organized by outside parties. Laboratories will exercise the plan annually. The format of the exercise will vary, as laboratories should attempt to leverage exercises organized by outside parties. Exercises may only involve certain portions of the plan (e.g., data exchange) or only a subset of the member laboratories.

After completion of an exercise or an actual response, an assessment will occur to review the exercise or incident outcomes, identify program shortfalls, and recommend necessary corrective actions. This review will be led by the Region 6 Laboratory. To aid in the development of the assessment, a Close-out Action Checklist has been included in Appendix O. Individual laboratories will note problem areas, as well as areas of success. The issues identified will be documented in an After Action report. Development of the After Action report will be led by the laboratory responsible for orchestrating the exercise and will include all laboratories involved. This laboratory will also organize corrective actions and coordinate changes to the RLRP. Laboratories will be responsible for any necessary changes to their SOPs.

All changes made to the RLRP must be noted in the Change Control table at the beginning of this plan. Development of future exercises should account for these changes, and should be designed to test whether the underlying issues have been resolved.

3.10 Finance and Administration

This plan does not establish mechanisms for member laboratories to receive financial assistance to offset costs incurred during an emergency response under this plan. However, this plan does not obligate additional expenditures by any laboratory, as all laboratories have the ability to decline to provide support for any reason. The following mechanisms outside of the RLRP are in place for cost reimbursement:

- Stafford Act
- ESF #3
- Emergency Management Assistance Compact (EMAC)
- Contracts or purchase orders between states
- State and tribal assistance grants (STAGs)
- Inter-agency grants or agreements

- $ OSC funding mechanisms
- $ Other environmental funding resources as they become available

When the potential exists for reimbursement, laboratories must maintain accurate records of expenditures associated with analytical support of an event, including the tracking of all personnel engaged in incident activities, expenditures for sample transport and laboratory services (e.g., reagents and disposables, overtime or other analyst time, equipment depreciations, sampling disposables, waste and sample disposal). Alternatively, laboratories may track analyses performed, if they track costs on a per sample basis. In addition, all costs must be documented and restricted to analyses supporting that event. Specific expenditures to track will vary based on the situation. When reimbursement is possible under the Stafford Act, laboratories should note that the project plan will explicitly list all expenditures that are available for reimbursement.

During the latter stage of a response (i.e., non-emergency), contracts and purchase orders between states must be used in place of emergency response-related options (i.e., Stafford Act, EMAC). When one laboratory provides support to another under this plan, laboratories should not generate a profit. In addition, the plan assumes that any shipping or transport costs for samples will be paid prior to shipment by the requester.

Additional considerations may need to be made for fee-for-service laboratories based on their operational constraints. Whether one of these laboratories can perform analyses will be determined on an incident-specific basis.

Appendix A List of Acronyms

ADR	Automated Data Review
AHRF	All Hazard Receipt Facility
APHL	Association of Public Health Laboratories
ASR	Analytical Services Requester
CDC	Centers for Disease Control and Prevention
CFR	Code of Federal Regulations
CID	Criminal Investigation Division
COC	Chain of Custody
DEQ	Department of Environmental Quality
DHS	U.S. Department of Homeland Security
DoD	U.S. Department of Defense
DMC	Deuterated Monitoring Compound
DNR	Department of Natural Resources
DOT	U.S. Department of Transportation
DQO	Data Quality Objective
EDD	Electronic Data Deliverable
eLRN	Environmental Laboratory Response Network
EMAC	Emergency Management Assistance Compact
EPA	U.S. Environmental Protection Agency
ESF	Emergency Support Function
FDA	U.S. Food and Drug Administration
FERN	Food Emergency Response Network
HAZWOPR	Hazardous Waste Operations and Emergency Response
HSPD	Homeland Security Presidential Directive
IATA	International Air Transport Association
IC	Incident Commander
ICLN	Integrated Consortium of Laboratory Networks
ICS	Incident Command System
INS	Incident of National Significance
LCS	Laboratory Control Spike
LIMS	Laboratory Information Management System
LRN	Laboratory Response Network
MOU	Memorandum of Understanding
MSL	Mutual Support Laboratory
NHSRC	EPA's National Homeland Security Research Center
OSC	On-Scene Coordinator
PRL	Primary Responding Laboratory
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
RLRP	Region 6 Laboratory Response Plan for Drinking Water
RPTB	Response Protocol Tool Box
SAM	Standard Analytical Methods
SAP	Standardized Analytical Protocol
SOP	Standard Operating Procedure
STAG	State and tribal assistance grants
TNI	The NELAC Institute
VOA	Volatile Organic Analysis
VOC	Volatile Organic Compound

Appendix B Communication Contact List

2

Agency	Name	Address	Phone	Email	24-hour Contact Number
EPA Region 6					
EPA Region 6 Laboratory – Primary	David Neleigh	10625 Fallstone Rd. Houston, TX 77099	281-983-2209	Neleigh.David @epa.gov	281-415-6818
EPA Region 6 Laboratory – Secondary	Rick McMillin	10625 Fallstone Rd. Houston, TX 77099	281-983-2107	Mcmillin.Rick @epa.gov	832-443-4568
EPA Region 6 Laboratory – Tertiary	Christy Warren	10625 Fallstone Rd. Houston, TX 77099	281-983-2137	Warren.Christy @epa.gov	281-415-6815
EPA Region 6 Water Quality Protection Division Drinking Water Section	Greg Grover	1445 Ross Av (6WQ-SD) Dallas, TX 75202	214-665-2776	Grover.Greg@ epa.gov	866-372-7745
State of Arkansas					
Department of Health, Public Health Laboratories – Primary	APHL Communicatio ns	4815 W. Markham Little Rock, AR 72205	1-800-633-1735		1-800-633-1735
Department of Health, Public Health Laboratories – Secondary	Jeffery Moran	201 South Monroe Little Rock, AR 72205	501-661-2826	Jeffery.moran @arkansas.go v	501-940-3208
Department of Health, Public Health Laboratories – Tertiary	Suzanne Owen	201 South Monroe Little Rock, AR 72205	501-661-2988	Suzanne.owen @arkansas.go v	501-765-8099
Arkansas Department of Environmental Quality – Primary					
Arkansas Department of Environmental Quality – Secondary					
Arkansas Department of Environmental Quality - Tertiary					
Arkansas Civil Support Team	Larry Haltom		501-212-5001	Larry.haltom@ ar.ngb.army.mi l	501-681-1173
State of Louisiana					
Department of Health and Hospitals, Office of Public Health Lab Services – Primary	Stephen Martin	3101 West Napoleon Avenue Metairie, LA 70001	504-219-4668	sjmartin@dhh.l a.gov	504-458-9537

Agency	Name	Address	Phone	Email	24-hour Contact Number
Department of Health and Hospitals, Office of Public Health Lab Services – Secondary	Louis P. Wales Jr.	3101 West Napoleon Avenue Metairie, LA 70001	504-219-4662	lwales@dhh.la.gov	504-460-5108
Department of Health and Hospitals, Office of Public Health Lab Services – Tertiary	Arthur Hagar	3101 West Napoleon Avenue Metairie, LA 70001	504-219-4667	Ahagar@dhh.la.gov	504-289-7687
Louisiana Department of Environmental Quality – Primary	Melvin Mitchell	LDEQ 1209 Leesville Baton Rouge, LA 70802	225-219-9800	Melvin.Mitchell@LA.gov	225-614-5065
Louisiana Department of Environmental Quality - Secondary	Donna Haydel	LDEQ 1209 Leesville Baton Rouge, LA 70802	225-219-9800	Donna.Haydel@LA.gov	
Louisiana Department of Environmental Quality - Tertiary	Leonard Killmer	LDEQ 1209 Leesville Baton Rouge, LA 70802	225-219-9800	Leonard.Killmer@LA.gov	
Louisiana Civil Support Team	David Aycock		504-278-8383	David.aycock@us.army.mil	504-400-2427
State of New Mexico					
Department of Health, Scientific Lab Division – Primary	Phillip Adams	700 Camino de Salud NE, Albuquerque, NM 87106	505 841 2510	phillip.adams@state.nm.us	none
Department of Health, Scientific Lab Division – Secondary	David Mills	700 Camino de Salud NE, Albuquerque, NM 87106	505 841 2523	david.mills@state.nm.us	none
Department of Health, Scientific Lab Division – Tertiary	Twila Kunde	700 Camino de Salud NE, Albuquerque, NM 87106	505 841 2530	Twila.kunde@state.nm.us	none
New Mexico Environment Department – Primary	Mary Day DWB Bureau Chief			Mary.day@state.nm.us	
New Mexico Environment Department – Secondary	Jerome K Lewis	NMBD/DWB 5500 San Antonio Dr. NE Albuquerque, NM 87109	505-222-9534	Jerome.lewis@state.nm.us	
New Mexico Environment Department - Tertiary	Chuck Thomas Albuquerque District Supervisor NMBD/DWB	5500 San Antonio Dr. NE Albuquerque, NM 87109	505-222-9532	Charles.thomas@state.nm.us	Office: 505-827-9329 Emergency (cell): 505-660-3107
New Mexico Civil Support Team	James Keefner		505-867-7304	James.keefner@us.army.mil	505-453-6131
State of Oklahoma					
Department of Environmental Quality – Primary	Chris Armstrong	Department of Environmental Quality 707 N. Robinson Okla City OK 73102	405-702-1018	Chris.armstrong@deq.state.ok.us	405-570-5744

Agency	Name	Address	Phone	Email	24-hour Contact Number
Department of Environmental Quality – Secondary	Judy Duncan	Department of Environmental Quality 707 N. Robinson Okla City OK 73102	405-702-1040	Judy.duncan@deq.state.ok.us	405-570-3330
Department of Environmental Quality – Tertiary	Monty Elder	Department of Environmental Quality 707 N. Robinson Okla City OK 73102	405-702-1017	Monty.elder@deq.state.ok.us	405-570-1546
Oklahoma State Department of Health – Primary					
Oklahoma State Department of Health – Secondary					
Oklahoma State Department of Health - Tertiary					
Oklahoma Civil Support Team	Kenneth Moore		405-475-1906	Kenneth.m.moore@us.army.mil	
State of Texas					
Department of State Health Services, Lab Services Section – Primary	Dwight Schaeper	Department of State Health Services 1100 W 49th St. Austin, TX 78756	512-458-7318 x2429	Dwight.Schaeper@DSHS.state.tx.us	512-634-6731
Department of State Health Services, Lab Services Section – Secondary	Eldridge Hutcheson	Department of State Health Services 1100 W 49th St. Austin, TX 78756	512-458-7318 X2468	Elridge.Hutcheson@DSHS.state.tx.us	512-634-6736
Department of State Health Services, Lab Services Section – Tertiary	Susan Neill	Department of State Health Services 1100 W 49th St. Austin, TX 78756	512-458-7318 x2418	Susan.Neill@DSHS.state.tx.us	512-634-6737
Department of Health Services, Chemical Threat Lab – Primary	David Klein	1100 W. 49th St Austin, TX 78756	512-634-6730	David.Klein@DSHS.state.tx.us	512-689-9945
Department of Health Services, Chemical Threat Lab – Secondary					
Department of Health Services, Chemical Threat Lab – Tertiary					
Texas Commission on Environmental Quality (Houston) – Primary	Jim Busceme	5144 E Sam Houston Pkwy N. Houston, TX 77015	281-457-5229	jbusceme@tceq.state.tx.us	832-217-6146
Texas Commission on Environmental Quality (Houston) – Secondary	Shirley Best	5144 E Sam Houston Pkwy N. Houston, TX 77015	281-457-5229	sbest@tceq.state.tx.us	

Agency	Name	Address	Phone	Email	24-hour Contact Number
Texas Commission on Environmental Quality (Houston) – Tertiary	Mike Barbay	5144 E Sam Houston Pkwy N. Houston, TX 77015	281-457-5229	mbarbay@tceq.state.tx.us	
San Antonio Metropolitan Health District – Primary					
San Antonio Metropolitan Health District – Secondary					
San Antonio Metropolitan Health District – Tertiary					
City of Houston Health Department – Primary					
City of Houston Health Department – Secondary					
City of Houston Health Department – Tertiary					
City of Wichita Falls, Water Purification Laboratory – Primary	Aimee Wilson	4801 Big Ed Neal Dr. Wichita Falls, Texas 76310	940-691-1153	Aimee.Wilson@cwftx.net	Cell 940-642-3222 Pager 940-716-2186
City of Wichita Falls, Water Purification Laboratory – Secondary	Mark Southard	4801 Big Ed Neal Dr. Wichita Falls, Texas 76310	940-691-1153		Cell 940-704-3912 Pager 940-716-2186
City of Wichita Falls, Water Purification Laboratory – Tertiary	Daniel Nix	4801 Big Ed Neal Dr. Wichita Falls, Texas 76310	940-691-1153	Daniel.Nix@cwftx.net	
North Texas Municipal Water District – Primary					
North Texas Municipal Water District – Secondary					
North Texas Municipal Water District - Tertiary					
Texas Civil Support Team	Michael Cain		512-782-1906	Michael.cain@tx.ngb.army.mil	

Appendix C Legal Authorities

The following authorities are the basis for the development of the Region 6 Laboratory Response Plan (RLRP) for Drinking Water. The RLRP does not supersede existing plans or authorities that were developed for response to incidents under Department and Agency statutory authorities. Rather, it is intended to be a coordinating plan to provide an effective regional response to a drinking water contamination event.

C.1 Federal Authorities

Title	Description	Reference
Homeland Security Act of 2002	Establishes Department of Homeland Security, assigns it the mission to prevent terrorist attacks, reduce vulnerability, minimize damage and assist in the recovery from terrorist attacks, and act as the focal point regarding natural and man-made crises and emergency planning.	Pub. L. 107-296, 116 Stat. 2135 (2002) {6 U.S.C. §§ 101-557}
Robert T Stafford Disaster Relief and Emergency Assistance Act	Establishes programs and policies to provide disaster and emergency assistance in the event of natural disasters or terrorist events.	93 Pub. L. 288, 88 Stat. 143 (1974) {42 U.S.C. §§ 5121-5206}
The Public Health Security and Bioterrorism Preparedness and Response Act of 2002	Designed to improve the ability to prevent, prepare for, and respond to bioterrorism and other public health emergencies in the United States. EPA has responsibilities in protecting the nation's water supply including providing information on potential threats to water systems, strategies for responding to potential incidents, information protection protocols for vulnerability assessments in its possession and research studies in areas relevant to water security.	Pub. L 107-188, 116 Stat. 294 (2002) {Key provisions: 42 U.S.C. § 247d and § 300hh}
Safe Drinking Water Act (SDWA) of 1974, SDWA Amendments of 1986 SDWA Amendments of 1996	Designed to protect public health by regulating the nation's public drinking water supply. SDWA authorizes the United States Environmental Protection Agency (USEPA) to set national health-based standards for drinking water to protect against both naturally-occurring and man-made contaminants that may be found in drinking water. EPA, states, and water systems work together to make sure standards are met.	Pub. L. 92-523 Pub. L. 99-339 Pub. L. 104-182 {42 U.S.C. §300f et seq. (1974)}
Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)	Establishes Federal authority to respond to releases or threats of releases of hazardous substances that may present a danger to public health or welfare.	42 U.S.C. §§ 9601-9675 (2002)

Title	Description	Reference
Resource Conservation and Recovery Act (RCRA)	Grants EPA the authority to control hazardous waste from "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous wastes. RCRA also set forth a framework for the management of non-hazardous wastes.	42 U.S.C. §§6901 et seq. (1976)
The Toxic Substances Control Act (TSCA)	Gives EPA the ability to track the 75,000 industrial chemicals currently produced or imported into the United States. EPA can require reporting or testing of those that may pose an environmental or human-health hazard. EPA can ban the manufacture and import of those chemicals that pose an unreasonable risk.	15 U.S.C. §§2601 et seq. (1976)
Federal Water Pollution Control Act (Clean Water Act)	Establishes Federal authority to regulate and control releases of hazardous substances or pollutants to surface waters.	33 U.S.C. §§1251-1387 (2002)
Defense Against Weapons of Mass Destruction Act	Establishes that DOD is to provide expert advice to Federal, state, and local agencies regarding WMD, including training and testing in emergency response	50 U.S.C. §§ 2301-2368 (2003)
National Primary Drinking Water Regulations	Protect public health by limiting the levels of contaminants in drinking water.	40 CFR Part 141 (2002)
Interstate Shipment of Etiologic Agents	Describes the requirements for the proper packaging and shipping of biomedical material. CDC is in the process of revising Transportation Regulation (42 CFR 72) to unify with other federal regulations.	42 CFR Part 72 (1980, revised 1995, currently under revision)
Hazardous Materials Regulations	Improves the regulatory and enforcement authority of the Secretary of Transportation to protect the nation adequately against risks to life and property which are inherent in the transportation of hazardous materials in commerce. Empowers the Secretary of Transportation to designate as hazardous material any "particular quantity or form" of a material that "may pose an unreasonable risk to health and safety or property".	49 CFR Part 171-178 (1975)
The National Oil and Hazardous Substances Pollution Contingency Plan	Ensures coordinated and integrated response by various agencies and departments of the Federal Government to prevent, minimize or mitigate threats to public health or welfare posed by releases of hazardous substances, pollutants and contaminants.	40 CFR Part 300 (2003)
Organization of the Department of Justice, FBI, General Functions	Designates the FBI as the agency with lead responsibility of investigating all crimes involving terrorist activities.	28 CFR §0.85(l)

Title	Description	Reference
Hazardous Materials - Revision to Standards for Infectious Substances	Revises definitions, packaging, and other shipping requirements for infectious substances under the Hazardous Materials Regulations (49 CFR Part 171-178) to make them more consistent with requirements in international standards and incorporate former agency exemptions.	67 FR 53118 (August 14, 2002)
Executive Order 12656	Assigns lead and support responsibilities to each Federal agency for national security preparedness and designates DHS as principal agent for coordination between agencies.	53 FR 47491 (1988) as amended by Exec. Order 13286, 68 FR 10619 (2003)
Homeland Security Presidential Directive-4 National Strategy to Combat Weapons of Mass Destruction	Requires research and development to improve ability of U.S. to address evolving threats.	December 2002
Homeland Security Presidential Directive-5 Management of Domestic Incidents	Establishes a single comprehensive management plan for domestic incidents, the National Incident Management System (NIMS).	February 28, 2003
Homeland Security Presidential Directive-7 Critical Infrastructure, Identification, Prioritization and Protection	Requires development of a national indications and warnings architecture to provide an understanding of baseline infrastructure operations, the identification of indicators and precursors to an attack, and a surge capacity for detecting and analyzing patterns of potential attacks.	December 17, 2003
Homeland Security Presidential Directive-8 National Preparedness	Establishes policies to strengthen preparedness of U.S. to prevent and respond to threatened or actual terrorist attacks, major disasters, or other emergencies.	December 17, 2003
Homeland Security Presidential Directive-9 Defense of United States Agriculture and Food	Institutes development of nationwide laboratory networks for food, veterinary, plant health, and water quality and integration of standardized diagnostic protocols and procedures.	January 30, 2004
Homeland Security Presidential Directive-10 Biodefense for the 21st Century	Requires determining the nationwide laboratory surge capacity required to support environmental decontamination of chemical, biological, and radiochemical-nuclear agents by reviewing federal, state, local, and private laboratory capabilities specifically related to environmental sampling, testing, and ensuring evidentiary considerations.	April 28, 2004

Title	Description	Reference
Homeland Security Presidential Directive-12 Policy for Common Identification System for Federal Employees and Contractors	Requires development and deployment of a common and reliable identification system for Federal employees and contractors that is inter-operable across government agencies.	August 27, 2004
Presidential Decision Directive 39	Establishes policy to reduce the Nation's vulnerability to terrorism and strengthen capabilities to deter and respond.	June 21, 1995
Presidential Decision Directive 62	Defines roles of Federal agencies and departments in defeating terrorism.	May 22, 1998
Presidential Decision Directive 63	Establishes a national center to warn of and respond to attacks and builds the capability to protect critical infrastructures from intentional acts.	May 22, 1998
Surveys, Studies, Investigations And Special Purpose Grants Within the Office of the Administrator	May potentially be used as the basis for grants to establish and implement an environmental laboratory response plan for Homeland Security	CFDA 66.610

C.2 State and Local Authorities

Title	Description	Reference
No significant state or local legal authorities have been identified at this time		

Appendix D Environmental Laboratory Response Network

D.1 Background

The events of September 11, 2001, and the subsequent anthrax attacks, clearly demonstrated that the U.S. environmental laboratory infrastructure requires better organization in order to analyze the high volume of environmental samples that may result from major terrorist incidents. Tasks under Homeland Security Presidential Directives underscore the importance of establishing a national environmental laboratory support capability. This capability currently does not exist.

To fill this critical gap, EPA is designing a Homeland Security Laboratory Response Program (HSLRP) that will focus on development of a national environmental lab system that builds on existing networks and capabilities. Establishing a more organized infrastructure will help ensure preparedness of laboratories, training programs, and establish standards of performance and analytical capabilities for agents used as weapons of mass destruction. The goal will be to provide environmental laboratory testing capability and capacity to meet governmental responsibilities for surveillance, response, and recovery from incidents involving release of chemical, biological, or radiological agents, and explosives.

Core concepts for building an environmental Laboratory Response Network (eLRN) include developing environmental analytical capability at a core group of local, state, federal, and private laboratories. Activities include the following:

- **Negotiate Additional Interagency Agreements with National Special Reference Laboratories.** Select national laboratories have the capabilities that are necessary to handle select bioagents and chemical surety materials.
- **Stand Up an Alliance with the Centers for Disease Control and Prevention's (CDC) Laboratory Response Network (LRN) for Drinking Water Analysis Needs.** HSPD-9 tasks EPA to develop a drinking water surveillance and monitoring system and the laboratory capability and capacity to support it. This will be the Water Security Initiative and the Water Laboratory Alliance. This system should parallel the capabilities of the CDC LRN laboratory system, but will focus on drinking water analysis.
- **Develop Additional Governmental Laboratory Capability.** EPA is currently developing Chemical Warfare Agent (CWA) analytical capabilities. Inter-Agency Agreements (IAGs) are in place with the Department of Defense to allow EPA access to ultra-dilute CWAs for methods research, calibration of instruments for responses, and use by EPA CWA contractors. Fixed and mobile CWA assets are in the developmental stage. The National Enforcement Investigations Center (NEIC) and the Office of Radiation and Indoor Air (ORIA) will also have expanded roles in homeland security laboratory capability. Select agent capabilities remain limited to IAGs with DOD and CDC.
- **Develop All-Hazard Receipt Facility (AHRF).** A significant gap exists in the handling of samples of totally unknown contaminants. In partnership with the Department of Homeland Security (DHS), EPA has designed and built two prototype AHRFs with acceptable screening protocols. The units will be tested for one year to assess capabilities. When the model is proven, the design and/or similar units will be available for wider distribution.
- **Designate a Permanent EPA Organization to Manage Cross-agency Laboratory Issues.** This role will be filled by the EPA's Homeland Security Laboratory Response Program (HSLRP) and managed by the Homeland Security Laboratory Response Center (HSLRC). The Center will be located within the Office of Emergency Management, Office of Solid Waste and Emergency Response. This program will function as a coordinating office among the affected EPA program offices, the Regional offices, and the Homeland Security Collaborative Network (HSCN) within the Agency. This organization will also work externally as the interface with the Integrated Consortium of Laboratory Networks (ICLN) described below and its technical committees, and

will serve as a technical resource for interagency working groups. The organization will continue the current work with the DHS Environmental Chemical Laboratory Response Network.

The HSLRC will seek to collaborate across the Agency with key support program offices, laboratories, and Regions as network policy and guidance are formed, and budgets are developed. Each affected program office and Region is being asked to participate in this initiative. Because so much of the Agency is impacted by the HSLRP, the existing Agency-wide HSCN will be used as the primary mechanism for communicating among offices.

D.2 Relationship of eLRN to the Integrated Consortium of Laboratory Networks (ICLN)

There are a number of existing and planned homeland security laboratory networks managed by federal agencies and departments, each with its own mission. For example, networks exist for clinical analyses, food, and agricultural products. In 2004, the White House Homeland Security Council and advisors within the Office of the Vice President expressed their interest to a number of federal agencies that these various laboratory networks need to be coordinated and, where appropriate, aligned to the mutual benefit of one another. The resulting outcome of these discussions is a joint federal Memorandum of Agreement among ten agencies and departments that created the ICLN.

The ICLN vision is "a U.S. homeland security infrastructure with a coordinated and operational system of laboratory networks that provide timely, high quality, and interpretable results for early detection and effective consequence management of acts of terrorism and other events requiring an integrated laboratory response." The overarching structure for the ICLN is a function based framework utilizing existing national laboratory analytical capabilities from established laboratory networks.

The ICLN Network Coordinating Group (NCG) will develop the policies and procedures, and carry out the operations of the ICLN through a close working relationship among the operational leadership of the individual networks, and the other involved parties. Some of these laboratory networks include the following:

- **CDC's Laboratory Response Network (LRN).** In 1999, CDC established the LRN. The LRN is a national network of approximately 140 laboratories that includes federal, local and state public health, military, food-testing, environmental, veterinary, and international laboratories. Each of the CDC-designated LRN laboratories have access to the methods used in biological warfare agent detection, such as those used in the DHS BioWatch surveillance program. A subset of the LRN analyzes BioWatch samples on a daily basis using polymerase chain reaction (PCR) test protocols. The LRN laboratories have substantial analytical capabilities and varying capacities.
- **United States Department of Agriculture (USDA) Laboratory Networks.** USDA's laboratories have specific missions; however, in the homeland security arena, EPA's decontamination responsibilities may benefit from the availability of these laboratories. The USDA's Food Safety and Inspection Service, in collaboration with FDA, have established the Food Emergency Response Network (FERN). The mission of the FERN is to integrate the nation's food testing laboratories at the local, state and federal levels into a network that is able to respond to emergencies involving biological, chemical, or radiological contamination of food. The FERN plays a number of critical roles related to food-borne terrorism. These include a surveillance program, response capabilities, and recovery preparation to restore confidence in the food supply either after an emergency or in response to threats. The USDA's Animal and Plant Health Inspection Service is operating two laboratory networks. They have established the National Animal Health Laboratory Network (NAHLN) to "enable rapid and sufficient response to animal health emergencies", and the National Plant Diagnostic Network (NPDN) to address plant (e.g., crop) disease diagnosis and response.
- **EPA's Water Security Initiative and eLRN.** EPA's Water Security Initiative will be a monitoring and surveillance program that provides an early warning of a possible water

contamination event/attack. The Water Laboratory Alliance will be instrumental in the success of the Water Security Initiative with its collaboration with CDC's LRN. These laboratories would have expanded capability and capacity for analysis of water samples in support of HSPD 9 monitoring and surveillance activities. EPA's eLRN will include activities of the Water Security Initiative and will incorporate additional responsibilities for environmental media consistent with their responsibilities under the ICLN as a Responsible Federal Agency (RFA). EPA will actively participate on the ICLN's Joint Leadership Council and NCG to fully integrate the eLRN into the national laboratory response program.

D.3 eLRN Program and Objectives

The eLRN program will utilize, where possible, the existing networks or work groups. For example, the eLRN Program will likely utilize the HSCN for cross-Agency policy level direction. The Homeland Security Laboratory Response Workgroup will be relied upon for technical and operational guidance. Existing EPA laboratory capabilities and infrastructure will form the backbone of the eLRN. This includes laboratories in the Regions, Program Offices, the Office of Research and Development, as well as state and contract assets. Where possible, assets in the member networks of the ICLN may be utilized.

The network itself will be flexible to adapt to a variety of scenarios which would trigger the need to activate the eLRN. Approaches will follow the National Response Plan and will support the concepts and operations of the Incident Command Structure. The primary objectives of the eLRN are as follows:

- **Identify Needed Capability and Capacity and Synergies with other Federal Networks.** Ensure a more robust capability to analyze environmental samples involving both conventional and warfare agents. This capability may be developed within EPA's own laboratory infrastructure, in state laboratories, other federal laboratories or, where appropriate, in a commercial setting.
- **Develop Needed Science.** Ensure the technical underpinnings to organize the environmental analytical capability are in place. This work will create and validate necessary protocols, methods and standards. A proficiency testing program will also be designed and organized to ensure timely, high quality, and interpretable results are available for early detection and effective consequence management.
- **Develop and Organize an Environmental Laboratory Community.** Ensure a community of interested laboratories is organized around performing environmental analyses. This program coordination work will require internal and external collaboration and partnership work. On-going workgroups and technical committees will be engaged to support the effort.
- **Develop a Sustained Program.** Put in place and carry out planning and management activities which support a permanent program including grants management, information management, budget, and strategic planning. The program will manage the Laboratory Compendium, Laboratory Analyst Reserve Corps, Inter-Agency Agreements (IAGs), and Basic Ordering Agreements (BOAs) with external organizations and grants to State partners.

D.4 Framework of the eLRN

Discussions among Agency participants involved with our homeland security and laboratory programs resulted in the following recommendations for the eLRN framework. These recommendations align laboratory responses to stages of an event. They are organized by mode and phase of the event, type of event, laboratory categories that could be utilized and preferred laboratory response categories. Preferred laboratories were selected based on the current expectation of lead responsibilities, existing capability, and/or expected capacity needs in any given phase of a response. This description of the proposed framework of the eLRN can be viewed in **Table D-1**.

Table D-1. Proposed Framework of the eLRN[1]

Mode	Phase	Analysis	TIC (Toxic Industrial Chemicals)		Biological Contaminants		Chemical Warfare Agents		Radiochemicals	
			Laboratory Type	Preferred Type	Laboratory Type	Preferred Type	Laboratory Type	Preferred Type	Laboratory Type	Preferred Type
Surveillance	Routine Monitor	Presumptive	Contract EPA State Utility	Contract Utility	Contract Local Federal State Utility	State Utility	Federal	N/A	EPA Federal State Utility	EPA Utility
Response	Life Safety	Safety Screen	EPA Federal Local State Utility	N/A	EPA Federal Local State Utility	N/A	EPA Federal Local State Utility	N/A	EPA Federal Local State Utility	N/A
	ID of Agent or Threat	Confirmatory	Contract EPA Federal State	Contract EPA State	Federal State	State	Contract Federal	Federal	Contract EPA Federal State	Contract Federal
	Extent of Threat	Presumptive/ Confirmatory	Contract EPA Federal State	Contract EPA State	Contract Federal Local State	Federal State	Contract Federal	Federal	Contract EPA Federal State	Contract Federal State
Remediate and Recover	Clean-up	Presumptive/ Confirmatory	Contract EPA State	Contract	Contract Federal State	Contract Federal	Contract EPA Federal State	Contract	Contract EPA Federal State	Contract
	Clear for Reuse	Confirmatory	Contract EPA State	Contract	Contract Federal State	Federal State	Contract EPA Federal State	Federal	Contract EPA Federal State	Contract EPA State

[1]*Note: EPA laboratories are part of the EPA infrastructure. Federal laboratories are other non-EPA laboratories; contract laboratories are commercial laboratories in the private sector; state laboratories include the full range of state operated laboratories; and utility laboratories are operated by local utilities, such as drinking water treatment plants.*

D.5 Roles of Laboratories

The eLRN tiered laboratory structure follows the approach utilized by the LRN in assigning specific roles to three types of laboratories. The laboratory types considered include sentinel, confirmatory, and definitive reference. A description of these laboratory types is shown below:

- **Screening/Sentinel Laboratories.** These laboratories provide initial measurements that are at a screening level or a level likely requiring additional confirmatory laboratory analysis. Examples would be the sentinel laboratories of the Water Laboratory Alliance performing routine presumptive screening for threats to drinking water, and Hazmat Teams which screen for selected chemical agents at the life safety phase of a response. The eLRN does not envision environmental sentinel monitoring for all classes of contaminants.

- **Confirmatory Laboratories.** These laboratories provide high quality, timely and interpretable confirmatory level analysis that produces high confidence of the identification of threat agents. Regional EPA laboratories, EPA program and research laboratories, other federal laboratories, state laboratories, and commercial laboratories will generally fall into this category.

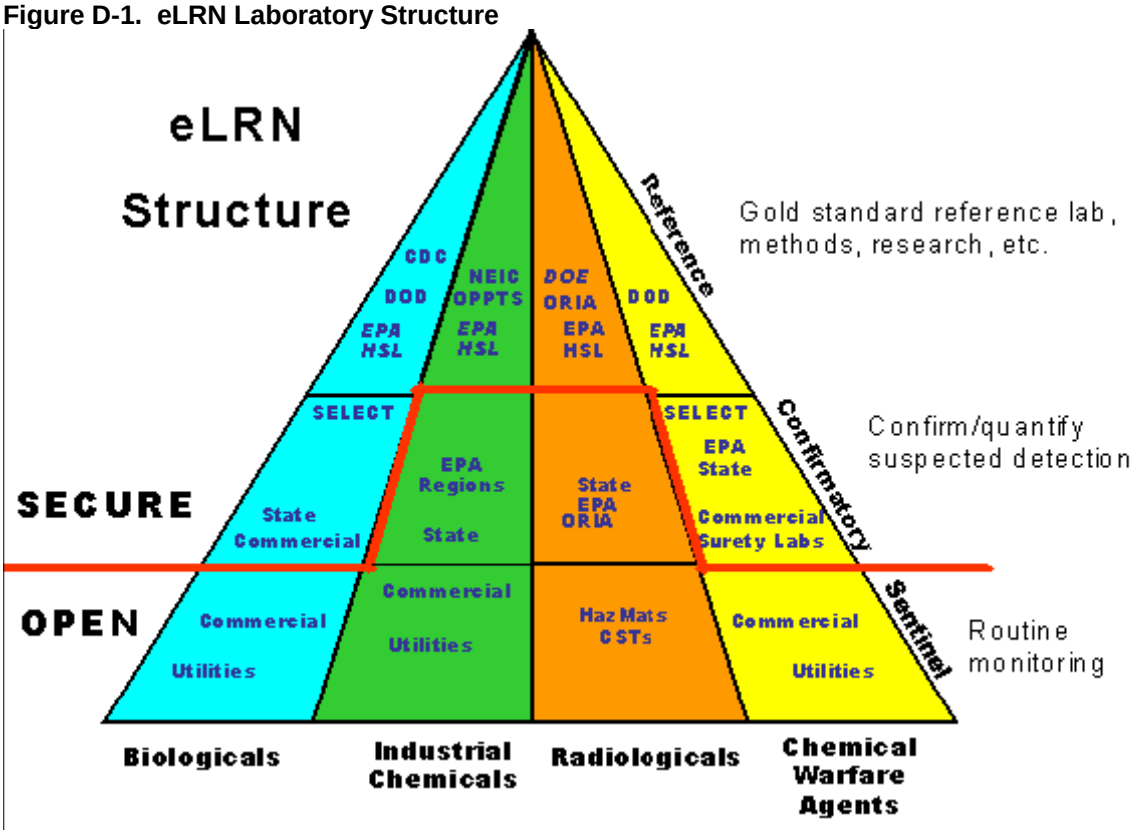
- **Definitive Reference Laboratories.** These laboratories provide the highest quality and most definitive level identification of threat agents, including agents not typically measured by confirmatory laboratories. They are also responsible for developing the sampling procedures and methods to measure biologic and chemical agents, as well as research to improve laboratory measurements. These laboratories also develop quality assurance procedures and safety procedures for handling threat agents. They are available as limited surge capacity for incident response and incident remediation. Examples would be EPA's Office of Research and

Development (ORD) National Environmental Measurement Center and DOD's Edgewood Chemical Biological Center.

It is important to note again that the eLRN will integrate and coordinate with existing networks in developing capacities and capabilities. The management of distributed tasks for ORD, the Program Offices, and the Regions would include eLRN program management, agents of concern and action levels, sampling and analytical protocols, response/commercial protocols, methods development, screening methodologies, proficiency testing, quality assurance/quality control, accreditation, grants to state laboratories, all-hazard receipt, and data management.

A representation of the eLRN laboratory structure is shown in **Figure D-1** as a pyramid graphic. This approach is similar to that demonstrated by CDC's LRN to visually describe their networks. The large pyramid is comprised of four smaller pyramids which represent classes of contaminants and contain representative laboratories in each tier of responsibility.

Figure D-1. eLRN Laboratory Structure



D.6 Minimum Qualifications for Participation

The HSLRC, located within the EPA's Office of Emergency Management, Office of Solid Waste and Emergency Response, generates and updates criteria for admission into and continued participation of all laboratories in the eLRN. Laboratories which apply for eLRN membership must meet the following basic criteria:

- **Laboratory affiliation.** Full membership in eLRN will be limited to public and private institutions performing regulatory and/or relevant analytical work. Exceptions are acceptable and will be determined on a case by case basis.
- **Quality.** Must have a quality assurance program in place to ensure the quality of data or other results. Accreditation is not required; however, quality systems should reflect those similar to ISO17025, the National Environmental Laboratory Accreditation Program, or other acceptable accreditation system.

- **Data and Information Security.** Must agree to share data through authorized network channels and only to designated personnel during Incidents of National Significance. Data and communications related to data should be appropriately secured. Electronic data transfer will be utilized and a Staged Electronic Data Deliverable (2 a) format will be proscribed for the transmission of data.
- **Distribution of Protocols.** Must agree in writing and have systems in place to limit copying, distribution, and access of eLRN designated "secure" methods to those individuals who are actively engaged in environmental analysis in the eLRN.
- **Proficiency.** Must demonstrate proficiency by participating in eLRN-sponsored proficiency testing programs.
- **Sample Handling.** Must have sample transport, chain-of-custody, and sample accountability controls to support law enforcement activities. Laboratories should be able to demonstrate that the items/samples examined and reported on were those submitted to the laboratory. A 'chain of custody' record should be maintained from the receipt of items/samples which details each person who takes possession of an item or alternatively the location of that item (e.g., if in storage). In addition, procedures should be documented which describe the measures taken to secure exhibits in the process of being examined which must be left unattended.
- **Test Methods.** Must agree to adhere to eLRN approved testing protocols when testing eLRN samples.
- **Reporting.** Laboratories must immediately report positive and suspect results to the designated eLRN contact for that laboratory in accordance with state and federal requirements. In addition, laboratories must agree to provide results of any and all testing performed for eLRN into a designated data repository. Laboratories must agree to release test results to authorized personnel only.
- **Audits.** Must agree to receive audits by eLRN representatives for the purposes of assessing qualifications for membership, capabilities, capacity, and quality.
- **Laboratory Qualification Checklist.** Must complete and agree to meet the requirements listed in the eLRN Laboratory Qualification checklist.
- **Facility and Personnel Security.** All laboratories must have training manuals and operational SOPs consistent with current laboratory safety practices which include, but are not limited to, a facility Chemical Hygiene Plan, radiation monitoring (if applicable), and a designated emergency medical treatment center. Additional requirements for specialty laboratories include:
    - Select (Biological) Agent Registration Laboratories: Must conform to existing requirements of the USA Patriot Act and current version of 42 CFR Part 73 or have contingency plans for handling, reporting, transferring or disposing of select agents and toxins, where applicable.
    - Surety (Chemical Warfare) Agent Laboratories: Must comply with the EPA/DOD ultra-dilute MOA requirements, and have contingency plans for handling, reporting, transferring, or disposing of surety agents and contaminated materials, where applicable. Personnel handling surety agents will be subject to background checks and must be citizens or have appropriate documentation. In addition, at least two persons in the facility must maintain a security clearance at the secret level.
    - Radiological Laboratories: Must satisfy all regulations applicable to radioactive materials licensing and radiation protection and have mechanism in place to ensure safe receipt, handling, storage, and disposition of radioactive materials and sources and to limit personnel exposure to radioactivity according to the principles of "as low as reasonably achievable" (ALARA). Radiological laboratory staff must be trained in radiation protection practices and ALARA and possess a working knowledge in the recognition of hazards and the prevention of cross contamination of samples and laboratory contamination. Must also have

mechanisms in place for isolating and securing gross radioactivity from the general laboratory environment, and should have laboratory staff trained in radiological hygiene and who are knowledgeable in the prevention of cross contamination of samples and laboratory contamination.

- All Hazard Receipt Facilities: Must have trained personnel who are currently capable of analyzing environmental samples for microbiological, chemical or radiological contaminants, as appropriate. Personnel handling select agents shall conform to USA Patriot Act regulations and current version of 42 CFR 73.
- Microbiology Laboratories: Should be at least a Biosafety Level 2 (BSL-2) facility and, at a minimum, have a certified biosafety cabinet.

Appendix E Emergency Water Sample Collection Kit

Table E-1. Example Emergency Water Sample Collection Kit

Item	Quantity	Notes
Field Resources and Documentation		
Field guide	2	Resource for field personnel
Health and safety plan	2	If required for the site
Sample labels	48	Waterproof (filled out in advance, if possible)
Sample documentation forms	24	For recording sample information
Custody tape (or seals)	2 rolls	Used on sample or shipping containers
Chain of custody forms	24	For documenting sample custody
Lab marker	2	Waterproof, 1 red, 1 black
Disposable camera	1	Waterproof or water resistant
General Sampling Supplies		
Sample containers	Table 3-2	For collecting samples
Device for grab sampling	1	For sampling large water bodies
10 liter HDPE container	4	For collection of large volume water samples
Lab grade tape	3 rolls	For temporary labeling in the field
Miscellaneous glassware	N/A	Beakers, graduated cylinders, spatula, etc.
Collapsible cooler	1	For sample storage
Rigid shipping container	1	For shipping by overnight service if needed.
1 qt. zippered freezer bags	1 pack 100	For double bagging ice and sample containers
Thermometer	2	For checking water temperature
Paper towels	2 rolls	Wiping wet containers and containing spills
Pathogen Sampling Supplies		
Tubing and clamp	1	For sample tap flushing, etc.
Stopwatch & graduated cylinder	1	For measuring flow rate
Ultrafiltration apparatus	1	For concentrating pathogen samples
Reagents (may need to be kept separate from the rest of the kit)		
Laboratory grade water	5 liters	For sample dilution in the field
Sodium thiosulfate crystals	100 grams	For water sample dechlorination
Ascorbic acid	100 grams	For water sample dechlorination
Sodium sulfite crystals	100 grams	For water sample dechlorination
Potassium dihydrogen citrate	100 grams	For carbamate preservation
6 Molar sulfuric acid	25 mL	For preservation of samples (2 mL per 1L bottle)
6 Molar ACS grade hydrochloric acid (HCl)	25 mL	In dropper bottle for preservation of samples for organic analyses
6 Molar trace metal-grade nitric acid (HNO_3)	25 mL	In dropper bottle for preservation of samples for trace metals analysis
10 Normal Sodium hydroxide (NaOH)	25 mL	In dropper bottle for preservation of samples for cyanide analyses
pH paper in ranges from 0 - 4 and 10 – 14	50 strips	For checking the pH of samples preserved with acid or base (sensitive to 0.5 pH units)
Safety Supplies		
Splash resistant goggles	2	One per individual (minimum)
Disposable gloves	6 pairs	Nitrile or polyethylene, powder-free
Disposable shoe covers	2 pairs	One pair per individual (minimum)
Disposable laboratory coats	2	One per individual (minimum)
Clear, heavy duty plastic trash bags	4	For disposal of lab coat, gloves, etc.
Rinse water	20 liters	For general use and first aid
Antiseptic wipes	1 container	For cleaning hands, sample containers, etc.
Bleach solution (at least 5%)	1 gallon	For decontamination if necessary
Squirt bottle	2	For use with rinse water or lab grade water
First aid kit	1	For general first aid
Flashlight/headlamp	3	For working at night or in dark locations

Table E-2. Samples Containers for Emergency Water Sample Collection Kit

Sample Type	Container Size	Container Type	No.	Dechlorinating Agent	Preservative	Analytical Technique	Reference Methods
CHEMISTRY - BASIC SCREEN (Established Techniques)							
Organic Analytes							
Volatiles	40 mL	Glass w/ Teflon faced septa	5	Ascorbic acid	1:1 HCl to pH < 2 See method.	P&T – GC/MS	EPA 524.2, 8260B
						P&T – GC/PID/ELCD	EPA 502.2, 8021B
Semi-volatiles	1 L	Amber w/ Teflon-lined screw caps	4	Sodium sulfite	6M HCl. See method.	SPE GC/MS	525.2, 8270D/3535
Quaternary nitrogen compounds	1 L	Amber PVC or silanized glass	4	Sodium thiosulfate	Sulfuric acid to pH 2	SPE HPLC – UV	549.2
Carbamate Pesticides	40 mL	Glass w/ Teflon faced septa	4	Sodium thiosulfate	Potassium dihydrogen citrate sample pH to ~3.8	HPLC – fluorescence	531.2
Inorganic Analytes							
Metals/Elements	125 mL	Plastic (i.e. HPDE)	2	None	Trace metal grade nitric acid. See method.	ICP – MS	200.8
						ICP – AES	200.7
						AA	200.9
Organometallic compounds	125 mL	Plastic (i.e. HPDE)	2	None	Nitric acid to pH $\leq$2. See method.	AA – cold vapor manual	245.1
						AA – cold vapor automated	245.2
Cyanide	1 L	Plastic	2	Ascorbic acid	Sodium hydroxide to pH 12. See method.	Titration, Spectrophotometric	335.2
						Colorimetric UV	335.3
Radiological	2 L	Plastic	2	None	None – mark samples not preserved	Gross alpha, gross beta, gamma isotopes, specific radionuclides	900 Series

Sample Type	Container Size	Container Type	No.	Dechlorinating Agent	Preservative	Analytical Technique	Reference Methods
CHEMISTRY - EXPANDED SCREEN (Exploratory Techniques)							
Unknown organics (volatile)	40 mL	Glass w/ Teflon faced septa	5	None	None – mark samples not preserved	P&T-GC/MS	See RPTB Module 4
Unknown organics (general)	1 L	Amber Glass	4	None	None – mark samples not preserved	**Prep**: SPE, SPME, micro LLE, direct aqueous injection, headspace **Analysis**: GC/MS, GC, HPLC, LC-MS	See RPTB Module 4
Unknown inorganics	1 L	Plastic	2	None	None – mark samples not preserved	ICP-MS	See RPTB Module 4
Immunoassays	1 L	Amber Glass	2	Consult manufacturers instructions	Consult manufacturers instructions	Consult manufacturers instructions	None
PATHOGENS - EXPANDED SCREEN (Established and Exploratory Techniques)							
Pathogens - culture	100 mL	HDPE (plastic)	2	Thiosulfate	TBD	Per target pathogens	See RPTB Module 4
Pathogens - PCR	100 mL	HDPE (plastic)	2	Thiosulfate	TBD	Per target pathogens	See RPTB Module 4
BASELINE WATER QUALITY PARAMETERS							
Water quality: bacteria	250 mL	Plastic	1	Thiosulfate	None	Fecal coliforms, *E.coli*	Standard methods
Water quality: chemistry	1 L	Plastic	1	None	None – mark samples not preserved	Conductivity, pH, alkalinity, hardness, turbidity	Standard methods
Surrogates	1 L	Amber glass	2	None	None – mark samples not preserved	Total organic carbon, ultraviolet absorbance, color, chlorine demand	Standard methods
Toxicity	125 mL	Glass	2	Consult manufacturers instructions	Consult manufacturers' instructions.	Rapid toxicity assay (several vendors)	None

Appendix F Structure of the Incident Command System

In 2003, the President issued Homeland Security Presidential Directive (HSPD) 5 that directed the Secretary of the Department of Homeland Security (DHS) to develop the National Incident Management System (NIMS) Incident Command System (ICS). NIMS provides a consistent framework for federal, state, and local governments, and private sector and nongovernmental organizations to work together to plan, prepare, respond, and recover from domestic incidents, including catastrophic terrorism acts. HSPD 5 also directed the Secretary of DHS to develop the National Response Plan (NRP) to integrate federal government domestic planning, preparedness, response and recovery (addressing all hazards) into a single plan. The NRP uses the NIMS framework as a mechanism to provide policy and direction for federal support to state, local, and tribal incident managers.

ICS is a flexible and scalable system driven by the tactical needs of the responders at the scene. It provides a common structure and terminology that facilitates the integration of multiple agencies while still maintaining a coherent chain of command. ICS also provides standardized training, pre-designated leadership positions, specific span of control, and well-understood assigned responsibilities. This approach will provide consistency in addressing key aspects of a response such as organizational elements and lines of communication. The system is built around five major response management functional areas: Command, Planning, Operations, Logistics, and Finance. These functional areas may be further subdivided depending on the situation and its complexity.

An Incident Commander (IC) typically handles the command function and is responsible for overall management of the incident. The command function normally includes a Public Information Officer (PIO), a Liaison Officer, a Safety Officer, and may include a Scientific Support Coordinator. The PIO is responsible for developing and releasing, when approved, information regarding the incident to the press and public. Only one PIO exists per incident command. The Safety Officer is responsible for safely conducting all operations of the incident command, and develops and recommends measures for ensuring personnel safety and for assessing hazardous situations. A Liaison Officer may exist in multi-jurisdictional incidents or where several agencies are involved, and serves as the point of contact for personnel assigned to the incident by assisting or cooperating agencies.

The remaining response management functional areas are known as general staff. Their responsibilities include:

- Operations Section – Management of all operations directly applicable to the primary mission. This section activates and supervises organizational elements in accordance with an Incident Action Plan (IAP) and directs its execution. It also requests and releases resources and makes changes to the IAP as necessary.
- Planning Section – Collection, evaluation, dissemination, and use of information regarding the development of the incident and resources status. The Planning Section may include an Environmental Unit (EU) which facilitates interagency environmental data management, monitoring, sampling, analysis and assessment. The EU is responsible for scientific support for a response, including support for response technologies, modeling and data interpretation, natural resources and ecological issues and establishment of standard methods and permitting issues. It participates in developing sampling and analysis plans; receives field data from the Operations Section and/or electronic deliverables from laboratory support; and verifies, interprets, and manages data, among other activities.
- Logistics Section – Provision of facilities, services, and materials to support the response. It also participates in developing and implementing the IAP.
- Finance Section – Oversight of all financial and cost analysis aspects of the incident.

An ICS may be expanded into a Unified Command (UC). The UC is a structure that brings together ICs of all major organizations involved in the incident to coordinate an effective response while simultaneously carrying out their own responsibilities. The UC links the organization responding to the incident and provides a forum for these agencies to make consensus decisions.

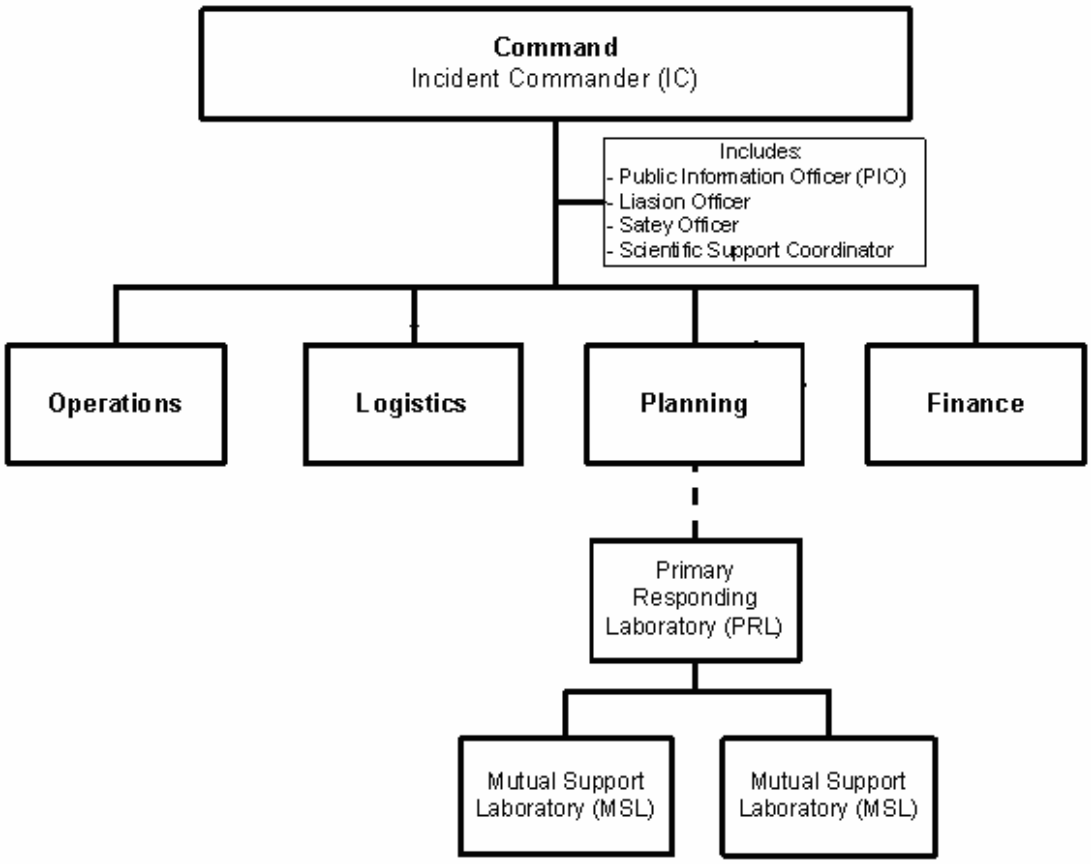
A UC may be used whenever multiple jurisdictions are involved in a response effort. These jurisdictions could be represented by:

- Geographic boundaries (e.g., two states, Indian tribal land)
- Governmental levels (e.g., federal, state, local, tribal);
- Functional responsibilities (e.g., fire, oil spill, Emergency Medical Services [EMS])
- Statutory responsibilities (e.g., Federal Land Managers, Responsible Party)
- Some combination of the above

The composition of a UC for a specific incident will be determined on a case-by-case basis. Factors to consider are incident specifics, determinations outlined in existing response plans, and decisions reached during the initial meeting of the UC. UC composition may change as the incident progresses. For a UC to be effective, the number of personnel should be kept as small as possible. A well-defined process requires the UC to set clear objectives to guide the on-scene response resources.

Figure F-1 shows an example of a basic ICS structure and how it might interact with the PRL/MSL structure described in the RLRP. Each of the general staff functions may be further subdivided depending on the situation. This structure may also increase in complexity as necessary. For more information, please refer to the draft EPA National Incident Management Handbook.

Figure F-1. ICS (Basic Structure)



Appendix G Help Sheet for Requesting Analytical Support during Drinking Water Emergency Response

Purpose: *This sheet should be used to facilitate discussions between field personnel/first responders and laboratories supporting an incident. Field personnel/first responders should use this checklist to ensure that all critical information is available when contacting the laboratory to avoid delays, and to ensure that all required information is included with samples sent to the laboratory to avoid login and analysis problems.*

GENERAL INFORMATION

Field personnel should be prepared to communicate the following basic information to the laboratory when calling the laboratory to request analytical services or report a sample shipment:

- ☐ No. of samples that need to be analyzed
- ☐ Matrix of sample (drinking water)
- ☐ Potential threat (e.g., cesium 137)
- ☐ Additional requested analyses
- ☐ Desired timeframe for receipt of results
- ☐ Site name
- ☐ Field contact
- ☐ Contact phone no.
- ☐ Contact information for results recipient

SITE CHARACTERIZATION INFORMATION

If site characterization has been performed, be prepared to provide an overview of this characterization, and ensure that this information is documented with the sample paperwork shipped to the laboratory:

- ☐ Initial hazard characterization (results of biological, chemical, radiological, or explosives screen, and type of screening procedure used)
- ☐ Additional information required for sample acceptance, as specified by the laboratory

SAMPLING INFORMATION

If standard procedures for proper collection and preservation of samples are not available, request from the laboratory guidance on the following:

- ☐ What sample volume is needed
- ☐ What type of sample container should be used
- ☐ How the sample(s) should be preserved
- ☐ How the samples should be stored or shipped (e.g., maintained at < 8EC)
- ☐ Other special considerations (e.g., collected with no headspace or collected aseptically, health and safety precautions)

CHAIN OF CUSTODY REQUIREMENTS

Laboratories understand that field personnel/first responders will likely use their own chain of custody forms. At a minimum, the information listed below must be captured on these forms or otherwise provided with the samples to ensure an unbroken chain of custody and to document sample collection:

- ☐ Sample ID #
- ☐ Sample collection location
- ☐ Date sample collected
- ☐ Time sample collected
- ☐ Requested analysis (if known)
- ☐ Preservation used
- ☐ Sampler name
- ☐ Sampler signature

- ☐ Date of signature

FIELD SCREENING

If field screening has been performed as part of site characterization, include the field screening form in the documentation shipped with the sample(s). Information should include:

- ☐ Sample ID
- ☐ Contaminant(s) targeted by screen
- ☐ Screening method
- ☐ Measurement, including units
- ☐ Where sample was screened
- ☐ Any relevant QC information

DATA QUALITY AND VALIDATION

Field personnel/first responders should be aware that laboratories will follow their existing procedures regarding the following in the absence of alternative guidance or specific instructions:

- ☐ Quality Assurance Project Plan (QAPP)
- ☐ Data quality objectives (DQOs)
- ☐ Third party validation
- ☐ Internal data review
- ☐ Method of transmission (hard copy and/or electronic formats)

SAMPLE AND RECORDS RETENTION

Field personnel/first responders should be aware that laboratories will follow their existing procedures regarding the following in the absence of alternative guidance or specific instructions:

- ☐ Sample retention
- ☐ Sample disposal
- ☐ Records requests (provision of copies or original data)
- ☐ Data/records retention
- ☐ Data/records destruction
- ☐ Response to Freedom of Information Act (FOIA) or State “Sunshine” law requests

Appendix H Laboratory Incident Communications Tracking Form

INSTRUCTIONS

This form is intended to be used by a responding laboratory to capture drinking water incident field information relevant to the laboratory response activity. A form should be completed for each investigation and expanded as necessary to fully document all information received from the field for each batch of samples received. If field data has been collected and reported on other forms those forms can be attached and referred to on this incident tracking form.

Incident Report to Laboratory

Site Name: _____

Date: _____

Time: _____

Reported By: _____

Contact Cell Number: _____

Type of facility:

- ☐ Source water
- ☐ Ground storage tank
- ☐ Distribution main
- ☐ Other _____
- ☐ Treatment plant
- ☐ Elevated storage tank
- ☐ Hydrant
- ☐ Pump station
- ☐ Finished water reservoir
- ☐ Service connection

Address: _____

_____

_____

_____

Additional Site Incident Information: _____

_____

_____

_____

_____

_____

_____

_____

INITIAL HAZARD ASSESSMENT

Initial hazard categorization

- ☐ Low hazard
- ☐ Radiological hazard
- ☐ Unknown
- ☐ Chemical hazard
- ☐ Biological hazard

If the initial hazard assessment indicates a chemical, radiological, or biological hazard (as described in RPTB Module 3, Section 4.1.3), then only teams trained to deal with such hazards should be sent to the site.

SITE CHARACTERIZATION TEAM

Name & Affiliation of Site Characterization/Sampling Team Leader:

_____

_____

Contact Information: _____

Other Site Contacts

Organization _____ Name: _____

Organization _____ Name: _____

Organization _____ Name: _____

Organization _____ Name: _____

Representatives from other agencies:

☐ Local law enforcement ☐ Fire department ☐ HazMat
☐ US EPA ☐ FBI ☐ Other

COMMUNICATION PROCEDURES

Mode of communication:

☐ Phone ☐ 2-way radio ☐ Digital
☐ Facsimile ☐ Other _____

Reporting events:

☐ Upon arrival at site ☐ During approach ☐ Site entry
☐ After site evaluation ☐ After field testing ☐ Site exit
☐ Other _____

VERBAL FIELD SAFETY SCREENING INFORMATION (Written report to be included with COC and samples)

Y	Parameter[1]	Screen[2]	Instrument	Result	Comments
	Radiation	Both			
	Chlorine residual	Water			
	pH / conductivity	Water			
	Cyanide	Water			
	Volatile chemicals	Safety			
	Chemical weapons	Both			
	Biotoxins	Water			
	Pathogens	Water			

1. List the parameters that will be evaluated as part of field screening (examples are listed).
2. Screening may be conducted for safety, rapid water testing, or both.

Name of Field Screen Tech _____

Cell Phone Number _____

SAMPLES Taken and Lab Destination

2

Y	Analyte	No. Samples	Preservation	Destination Laboratory(s)
	Standard VOCs			
	Semi-volatiles			
	Quartenary nitrogen compounds			
	Cyanide			
	Carbamate pesticides			
	Metals/elements			
	Organometallic compounds			
	Cyanide			
	Radionuclides			
	Non-target VOCs			
	Non-target organic compounds			
	Non-target inorganic compounds			
	Immunoassays			
	Pathogens – culture			
	Pathogens – PCR			
	Water quality – bacteria			
	Water quality – chemistry			

Appendix I Standardized Analytical Methods (SAM)

I.1 Standardized Analytical Methods for Environmental Restoration following Homeland Security Events (SAM)

To expedite and standardize contaminant identification in environmental samples across multiple laboratories following a homeland security related contamination incident, EPA's NHSRC is compiling and maintaining a list of laboratory analytical methods for priority contaminants relevant to water security (the SAM document). The methods will be used by environmental laboratories identifying and measuring biological, chemical, radiochemical, and biotoxin contaminants in environmental samples associated with remediation activities following a contamination incident. By standardizing the methods across laboratories, SAM potentially shortens critical decision times in national emergencies by reducing confusion associated with interpreting analytical results. SAM facilitates the analysis of large numbers of environmental samples, greatly improves the process of validating and analyzing sample data, and improves evaluating the effectiveness of decontamination efforts. Thus far, SAM lists procedures to identify and measure approximately 120 priority chemical contaminants, 18 radionuclides, 11 pathogens, and 17 biotoxins that may be a concern following a homeland security incident.

SAM is the product of an NHSRC-sponsored workgroup, consisting of the U.S. Centers for Disease Control and Prevention (CDC), Food and Drug Administration, Department of Homeland Security (DHS), Federal Bureau of Investigations, Department of Defense, Department of Agriculture, and the U.S. Geological Survey. The third revision to this methods compendium was published in February 2007 and includes input from DHS, the National Institutes of Occupational Safety and Health, CDC, DHS, the Food and Drug Administration, and numerous EPA offices. SAM can be found online at: http://www.epa.gov/NHSRC/pubs/reportSAM030107.pdf.

I.2 Standardized Analytical Protocols (SAPs)

NHSRC is developing and validating Standardized Analytical Protocols (SAPs) based on the methods listed in the SAM document, where further development and verification are necessary. Once validation is complete, data regarding specific method performance and data quality objectives will be available. Planning and validation for 5 chemistry SAPs have been initiated. These chemical SAPs include: GC/MS for semi-volatile SAM compounds, GC/MS for volatile compounds, High Performance Liquid Chromatography (HPLC), Inductively Coupled Plasma (ICP), and Ion Chromatography (IC). Five biological analytical protocols also have been drafted, and are in various stages of review.

I.3 SAM Companion Documents

As companions to SAM, NHSRC is also developing several documents that are intended to standardize procedures used to collect and screen samples prior to full confirmatory analysis in the laboratories. These documents will provide information needed to (1) collect, package, and ship environmental samples to be analyzed using analytical methods listed in SAM, (2) screen field conditions for the presence of SAM target analytes or related compounds, and (3) provide rapid preliminary analyses for laboratory identification of SAM target analytes or related compounds. These documents are currently under various stages of development, and involve the first responder community and the multi-agency workgroups involved in development of SAM. It is anticipated that all three SAM companion documents will be available during 2007.

Appendix J Response Protocol Toolbox

The RPTB is an EPA document developed to provide guidance to the water sector (i.e., drinking water community) on developing and revising Emergency Response Plans (ERP) for addressing contamination threats and incidents. The RTPB is a planning tool composed of six interrelated modules which focus on different aspects of planning a response to drinking water contamination threats and incidents. The modules in the RPTB were not prepared for use during an emergency; rather, the Response Guides are intended for that purpose. Furthermore, the RPTB does not implement any specific statutory directive and does not establish any requirements.

Module 1 of the RPTB is an overarching document that serves both as a primer on contamination threats to drinking water systems and an overall guide to drinking water utilities planning for such incidents. Module 2 is the hub of the toolbox in that it addresses the overall management of a contamination threat. The remaining modules support Module 2 by presenting information and protocols for investigating the contamination threat or implementing actions in response to a contamination threat or incident. Information specifically pertaining to drinking water laboratories can be found in Modules 3 and 4.

The RPTB and other documents prepared by EPA and associated agencies with information on Water Security can be found at:
http://cfpub.epa.gov/safewater/watersecurity/home.cfm?program_id=8#response_toolbox.
Please see the original documents for more detail.

J.1 Module 1: Water Utility Planning Guide

This module provides a brief discussion of the nature of the contamination threat to the public water supply and the planning activities that a utility may undertake to prepare for response to contamination threats and incidents.

J.2 Module 2: Contamination Threat Management Guide

This module provides the overarching framework for management of contamination threats to the drinking water supply. The threat management process involves two parallel and interrelated activities: 1) evaluating the threat; and 2) making decisions regarding appropriate actions to take in response to the threat.

J.3 Module 3: Site Characterization and Sampling Guide

This module outlines the site characterization process, the process by which information is gathered from the site of a suspected contamination incident at a drinking water system. Site characterization activities include the site investigation, field safety screening, rapid field testing of the water, and sample collection.

J.4 Module 4: Analytical Guide

This module provides an approach to the analysis of samples collected from the site of a suspected contamination incident (not a detailed protocol). The module describes a flexible framework for developing an approach for the analysis of water samples that may contain an unknown contaminant, one that will allow the approach to be crafted based on the requirements of the specific situation. The framework is also designed to ensure the effective and defensible performance of laboratory analysis.

J.5 Module 5: Public Health Response Guide

This module outlines the public health response measures that would potentially be used to minimize public exposure to potentially contaminated water, who is responsible for making the decision to initiate public health response actions, and the role of the water utility in this decision process. Specifically, it examines the role of the utility during a public health response action, as well as the interactions among

the utility, the drinking water primacy agency, the public health community, and other parties with a public health mission.

J.6 Module 6: Remediation and Recovery Guide

This module provides information on the planning and implementation of remediation and recovery activities that would be necessary following a confirmed contamination incident. The remediation process involves a sequence of activities, including: system characterization; selection of remedy options; provision of an alternate drinking water supply during remediation activities; and monitoring to demonstrate that the system has been remediated. Module 6 describes the types of organizations that would likely be involved in this stage of a response, and the utility's role during remediation and recovery.

Appendix K Example Chain of Custody Form

2

USEPA Contract Laboratory Program
Generic Chain of Custody

Reference Case
Client No:
SDG No:
L

Date Shipped: 5/30/2007	Chain of Custody Record	Sampler Signature:	For Lab Use Only
Carrier Name: FedEx	Relinquished By (Date / Time)	Received By (Date / Time)	Lab Contract No:
Airbill:	1.		Unit Price:
Shipped to: A4 Scientific, 1544 Sawdust Road, Suite 505, The Woodlands TX 77380, (281) 292-5277	2.		Transfer To:
	3.		Lab Contract No:
	4.		Unit Price:

SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME	FOR LAB USE ONLY Sample Condition On Receipt
01	Ground Water	/G	Al (21)	6-218922 (1)	01		
02	Ground Water	/G	Al (21)	6-218923 (1)	02		
03	Ground Water	/G	Al (21)	6-218924 (1)	03		
04	Ground Water	/G	Al (21)	6-218925 (1)	04		
05	Ground Water	/G	Al (21)	6-218926 (1)	05		

Shipment for Case Complete?N	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s):	Cooler Temperature Upon Receipt:	Chain of Custody Seal Number:
Analysis Key: Al = Aluminum	Concentration: L = Low, M = Low/Medium, H = High	Type/Designator: Composite = C, Grab = G		Custody Seal Intact? ___ Shipment Iced? ___

TR Number: 1-043013577-053007-0001

LABORATORY COPY

PR provides preliminary results. Requests for preliminary results will increase analytical costs.
Send Copy to: Sample Management Office, Attn: Heather Bauer, CSC, 15000 Conference Center Dr., Chantilly, VA 20151-3819; Phone 703/818-4200; Fax 703/818-4602

F2V5.1.047 Page 1 of 1

USEPA Contract Laboratory Program
Generic Chain of Custody

Reference Case: R
Client No:

Region: 1	Date Shipped: 5/30/2007	Chain of Custody Record	Sampler Signature:
Project Code:	Carrier Name: FedEx	Relinquished By (Date / Time)	Received By (Date / Time)
Account Code:	Airbill:	1	
CERCLIS ID:	Shipped to: A4 Scientific, 1544 Sawdust Road, Suite 505, The Woodlands TX 77380, (281) 292-5277	2.	
Spill ID:		3.	
Site Name/State: Generic/		4.	
Project Leader: BOBBY SAMPLER			
Action:			
Sampling Co:			

SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME	QC Type
01	Ground Water	/G	Al (21)	6-218922 (1)	01		--
02	Ground Water	/G	Al (21)	6-218923 (1)	02		--
03	Ground Water	/G	Al (21)	6-218924 (1)	03		--
04	Ground Water	/G	Al (21)	6-218925 (1)	04		--
05	Ground Water	/G	Al (21)	6-218926 (1)	05		--

Shipment for Case Complete? N	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s):	Chain of Custody Seal Number:
Analysis Key: Al = Aluminum	Concentration: L = Low, M = Low/Medium, H = High	Type/Designation: Composite = C, Grab = G	Shipment Iced? _____

TR Number: 1-043013577-053007-0001

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

Send Copy to: Sample Management Office, Attn: Heather Bauer, CSC, 15000 Conference Center Dr., Chantilly, VA 20151-3819; Phone 703/818-4200; Fax 703/818-4602

REGION COPY

F/V5.1.047 Page 1 of 1

2

Appendix L Electronic Data Deliverables

The following tables are intended as guidance to help laboratories establish common terminology and standardize expectations for electronic data deliverables (EDD) exchanged during emergency response. It is recommended that the EDD arrive in an excel spreadsheet with the laboratory contact name, phone number, and email address in the header, or header rows. The format is irrelevant, so long as the contact information is provided.

Table L-1 includes data elements for chemical and radiochemical analyses. Each element would be a column, which would be populated. Naturally, some of the columns, such as LabName, would be very repetitive. Each row would contain one data point. If a sample was analyzed for volatile organic compounds (VOCs), each result would require one row. If a list of 21 VOCs were being analyzed, then 21 rows would be required for each sample. More rows would be required if surrogates and internal standards were reported. The amount of QC that is contained in these EDDs will vary depending upon the capabilities of the laboratory's information management system.

Table L-1. Data Elements with Definitions for Chemical and Radiochemical Analyses

Data Element #	Data Element Name	Definition	Comment
1	LabName	Descriptive name for the laboratory performing this analysis	
2	ClientSampleID	A client-defined identifier for a sample	This should be reported exactly as it is seen on the chain of custody form
3	LabSampleID	A laboratory-defined identifier for a sample that uniquely identifies a single sample that is subjected to an analysis	
4	AnalyteName	The published reference name for the analyte	
5	CASRegistryNumber	The Chemical Abstract Service number for the analyte	
6	ClientAnalyteID	A client-defined identifier for an analyte	
7	LabAnalyteID	A laboratory-defined identifier for an analyte	
8	Result	Reportable final result for the analyte	This field is almost always numerical, unless the analysis is qualitative (i.e., detect/nondetect)
9	Counting Error	For methods based on counting discrete events, such as are common in radiochemistry, the error in the net count rate, usually scaled to the same units as the result.	Units for Result and Error should always be the same

10	ResultUnits	Units for Result	Units for Result and Error should always be the same
11	LabQualifier	A laboratory-assigned string of result qualifiers (usually a single character for each qualifier), based on client or laboratory-defined rules and values	
12	DetectionLimit	Detection limit for the analyte being measured. Reporting limits are defined in terms of a number below which data is reported as not detected.	
13	DetectionLimitUnits	Units for DetectionLimit.	Should be the same as ResultUnits
14	MethodID	The published reference code for the method used by the laboratory to analyze the sample	
15	ClientMethodID	A client-defined method identification number for the method used by the laboratory to analyze the sample	
16	LabMethodID	A laboratory-defined code for the method used by the laboratory to analyze the sample	
17	LocationID	Identifier for the sampling location at a site	This information may be present on the chain of custody.
18	MatrixID	A more specific description of the sample matrix or media	
19	CollectedDate	Date (and time, if required) the sample was collected. If collected over a range of dates, this is the start date.	
20	AnalyzedDate	The date (and time, if required) of analysis of an aliquot. If analyzed over a range of dates, this is the start date.	
21	Comment	A free-form comment field.	
22	QCType	The client-defined term used to define the specific type of sample being analyzed	
23	AnalyteType	A client-defined identifier that identifies the type of analyte reported	
24	ResultBasis	The basis upon which the final results were calculated	

25	ResultType	Specifies whether this analyte was detected or not detected. For positive detections, specifies whether the result is equal to ('='), greater than ('>'), or less than ('<') the value reported. For non-detects, the valid value 'Not_Detected' would be used. Can also be used to report method non-numeric results.	

Table L-2 includes data elements for chemical and radiochemical analyses. Each element would be a column, which would be populated. Naturally, some of the columns, such as LabName, would be very repetitive. Each row would contain one data point. If a unknown sample was analyzed for multiple analytes, each analyte result would require one row. For example if a sample was analyzed for three different analytes, a separate row would be required for each analyte (e.g., total coliform, fecal coliform, E. coli). Additional rows would be required for any controls reported. The amount of QC that is contained in these EDDs will vary depending upon the capabilities of the laboratory's information management system.

Table M-2. Data Elements with Definitions for Biological Analyses

Data Element #	Data Element Name	Definition	Comment
1	LabName	Descriptive name for the laboratory performing this analysis	
2	ClientSampleID	A client-defined identifier for a sample	This should be reported exactly as it is seen on the chain of custody form
3	LabSampleID	A laboratory-defined identifier for a sample that uniquely identifies a single sample that is subjected to an analysis	
4	AnalyteName	The published reference name for the analyte	
5	MethodID	The published reference code for the method used by the laboratory to analyze the sample	
6	Result	Reportable final result for the analyte	This field is almost always numerical, unless the analysis is qualitative (e.g., detect/nondetect or present/absent)
7	ResultUnits	Units for Result.	
8	LabQualifier	A laboratory-assigned string of result qualifiers (usually a single character for each qualifier), based on client or laboratory-defined rules and values	
9	DetectionLimit	Detection limit for the analyte being measured. Detection limits are defined in terms of the presence or absence of the analyte	Include if known/available

10	LocationID	Identifier for the sampling location at a site	This information may be present on the chain of custody.
11	MatrixID	A more specific description of the sample matrix or media	
12	CollectedDate	Date (and time, if required) the sample was collected. If collected over a range of dates, this is the start date.	
13	AnalyzedDate	The date (and time, if required) of analysis of an aliquot. If analyzed over a range of dates, this is the start date.	
14	Comment	A free-form comment field.	
15	QCType	The client-defined term used to define the specific type of sample being analyzed	

Appendix M Example Field Testing Results Form

Date of Field Testing:	Site Name:	Field Tester:	Phone No.

Parameter	Units	Screen[1]	Meter/Kit ID[2]	Testing Location[3]	Testing Time[4]	Results[5]	Ref. Value[6]

[1] *Screening may be conducted for safety, rapid water testing, or both.*
[2] *Report the unique identifier for the meter or kit used during screening.*
[3] *Report the specific location where the field testing was conducted.*
[4] *Report the specific time at which the test was performed.*
[5] *Results of field testing should include replicate analysis where appropriate.*
[6] *Results should be compared with a reference value, if available, to determine whether or not the levels detected pose a hazard.*

Appendix N Example Sample Documentation Form

Collection Date:	Site Name:	Sampler:	Phone No.

Sample ID	No. Bottles	Sampling Time	Sampling Location	Sample Description	Analysis	Sample Additives[1]

[1] *Report preservatives, dechlorinating agents, acid/base for pH adjustment, and any other sample additives.*

Appendix O Close-out Action Checklist

2

Plan Elements and Procedures	Problem Issue?	Description of Issue
Laws and Authorities		
Minimum Qualifications for Participation		
Resource Management		
Form of Commitment to this Plan		
Planning		
Direction, Control, and Coordination		
Roles		
Quality Assurance Project Plans (QAPPs)		
Communications and Notification		
Sampling		
Sample Brokerage, Transport, and Tracking		
Sample Brokerage		
Sample Transport		
Sample Tracking		
Health and Safety		
Analysis		
Basic Field/Safety Screening		
Rapid Laboratory Analysis		
Confirmatory Analysis		
Sample Disposal		
QC		
Data Verification		
Data Reporting and Validation		
Secure Data Transfer and Storage		
Record Keeping		
Training		
Exercises, Evaluations, and Close-out		
Finance and Administration		