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Sample Collection Information Document for Chemicals, Radiochemicals and Biotoxins

Companion to Selected Analytical Methods for Environmental Remediation and Recovery (SAM) 2017

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Companion to Selected Analytical Methods for Environmental Remediation and Recovery (SAM) 2017

by

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Acronyms and Abbreviations

AOAC	AOAC International (formerly the Association of Official Analytical Chemists)
Anal. Chem.	Analytical Chemistry
APHA	American Public Health Association
ASTM	ASTM International (formerly American Society for Testing and Materials)
BZ	Quinuclidinyl benzilate
°C	Degree Celsius
CDC	U.S. Centers for Disease Control and Prevention
CFR	Code of Federal Regulations
CLP	Contract Laboratory Program
cm	Centimeter(s)
cm^2	Centimeter(s) squared
COC	Chain of custody
CVAA	2-Chlorovinylarsonous acid
CVAOA	2-Chlorovinylarsonic acid
DAS	Diacetoxyscirpenol
DGR	Dangerous Goods Regulations
DHS	U.S. Department of Homeland Security
DIMP	Diisopropyl methylphosphonate
DNPH	Dinitrophenylhydrazine
DOE	U.S. Department of Energy
DOL	U.S. Department of Labor
DOT	U.S. Department of Transportation
EA2192	[S-2-(diisopropylamino) ethylmethylphosphono-thioic acid]
ECL	Electrochemiluminescence
ED	Ethyldichloroarsine
EDEA	N-Ethyldiethanolamine
ELFA	Enzyme-linked fluorescent immunoassay
ELISA	Enzyme-linked immunosorbent assay
EMPA	Ethyl methylphosphonic acid
EMSL	Environmental Monitoring and Support Laboratory
EPA	U.S. Environmental Protection Agency
ERT	Environmental Response Team (EPA)
ft^2	Square foot (square feet)
FDA	U.S. Food and Drug Administration
FRET	Fluorescence resonance energy transfer
FRMAC	Federal Radiological Monitoring and Assessment Center
g	Gram(s)
GA	Tabun
gal	Gallon
GB	Sarin
GD	Soman
GE	1-Methylethyl ester ethyl phosphonofluoridic acid
GF	Cyclohexyl sarin
GPS	Global Positioning System
HASL	Health and Safety Laboratory, currently known as Environmental Measurements Laboratory (EML)
HASP	Health and Safety Plan
HCl	Hydrochloric acid
HD	Mustard, sulfur
Hg	Mercury
$Hg(CN)_2$	Mercury (II) cyanide

HILIC MS-MS	Hydrophilic interaction-tandem mass spectrometry
2-HMP	(2-[hydroxymethyl] piperidine)
HMTD	Hexamethylenetriperoxidediamine
HMX	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine
HN-1	Mustard 1, nitrogen
HN-2	Mustard 2, nitrogen
HN-3	Mustard 3, nitrogen
HNO_3	Nitric acid
HPLC-FL	High performance liquid chromatography-fluorescence
HSRP	Homeland Security Research Program
i.d.	Inner diameter
IATA	International Air Transportation Association
IMPA	Isopropyl methylphosphonic acid
IO	Inorganic
ISM	Inorganic Superfund Methods
ISO	International Organization for Standardization
kPpa	Kilopascals
L	Liter(s)
L-1	Lewisite 1
L-2	Lewisite 2
L-3	Lewisite 3
lbs	Pounds
LC-ESI-MS-MS	Liquid chromatography-electrospray ionization-tandem mass spectrometry
LC-MS	Liquid chromatography-mass spectrometry
LC-MS-MS	Liquid chromatography-tandem mass spectrometry
LC-UV	Liquid chromatography-ultraviolet
LFA	Lateral flow immunoassay
M	Molar
m^3	Cubic meter(s)
µL	Microliter(s)
µm	Micrometer(s)
MALDI-TOF-MS	Matrix-assisted laser desorption ionization-time-of-flight mass spectrometry
MCE	Mixed cellulose ester
MDEA	N-Methyl diethanolamine
mg	Milligram(s)
min	Minute(s)
mL	Milliliter(s)
mm	Millimeter(s)
mM	Millimolar
MPA	Methylphosphonic acid
NA	Not applicable
Na_2CO_3	Sodium carbonate
NaOH	Sodium hydroxide
NAREL	National Air and Radiation Environmental Laboratory (EPA)
NEMI	National Environmental Methods Index
NH_3	Ammonia
NH_4Cl	Ammonium chloride
NH_4OH	Ammonium hydroxide
NHSRC	National Homeland Security Research Center (EPA)
NIOSH	National Institute for Occupational Safety and Health
n.o.s.	Not otherwise specified
NTTAA	National Technology Transfer and Advancement Act
o.d.	Outer diameter

OMB	Office of Management and Budget Directives
ORD	Office of Research and Development (EPA)
ORISE	Oak Ridge Institute for Science and Education
OSHA	Occupational Safety and Health Administration
OVS	OSHA versatile sampler
OW	Office of Water (EPA)
oz.	Ounce(s)
PETN	Pentaerythritol tetranitrate
pg.	Page(s)
PHILIS	Portable High-Throughput Integrated Laboratory Identification Systems
PMPA	Pinacolyl methyl phosphonic acid
ppbv	Parts-per-billion by volume
PPE	Personal protective equipment
ppm	Parts per million
pptv	Parts per trillion by volume
psig	Pounds per square inch gauge
PSN	Proper shipping name
PTFE	Polytetrafluoroethylene
PUF	Polyurethane foam
PVC	Polyvinyl chloride
QC	Quality control
R 33	Methylphosphonic acid, S-[2-(diethylamino)ethyl]O-2-methylpropylester]
RDX	Hexahydro-1,3,5-trinitro-1,3,5-triazine
RESL	Radiological and Environmental Sciences Laboratory
Rev	Revision
SAM	*Selected Analytical Methods for Environmental Remediation and Recovery*
SCID	Sample Collection Information Document
SCP	Sample Collection Plan
SM	*Standard Methods for the Examination of Water and Wastewater*
SOP	Standard Operating Procedure
SRS	Savannah River National Laboratory, Savannah River Site
SW	Solid Waste
TBD	To be determined
TDG	Thiodiglycol
TEA	Triethanolamine
TEPP	Tetraethyl pyrophosphate
TETS	Tetramethylenedisulfotetramine
TI	Transportation Index
1,3,5-TNB	1,3,5-Trinitrobenzene
2,4,6-TNT	2,4,6-Trinitrotoluene
TO	Toxic organics
UN#	United Nations numbers
USGS	United States Geological Survey
VCSB	Voluntary Consensus Standards Body
VOA	Volatile Organic Analysis
Vol.	Volume

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Sample Collection Information Document for Chemicals, Radiochemicals and Biotoxins

[Companion to Selected Analytical Methods for Environmental Remediation and Recovery (SAM) 2017]

1.0 Background

The U.S. Environmental Protection Agency's (EPA's) Homeland Security Research Program (HSRP) has worked with experts from across EPA and its sister agencies since 2003 to develop a compendium of analytical methods to be used when responding to intentional or unintentional contamination incidents. Analytical methods have been selected for chemical, radiochemical, pathogen and biotoxin analytes of concern for the types of environmental sample matrices that are anticipated in such incidents. The results of these efforts have been published in several revisions of EPA's *Selected Analytical Methods for Environmental Remediation and Recovery* (SAM).[1] HSRP periodically reviews and updates this information to address the needs of homeland security, reflect improvements in analytical methods and new technologies, and incorporate changes in target analytes.

In support of efforts to select appropriate analytical methods, EPA also recognizes the need for companion documents to provide information regarding collection of samples for analysis using the selected methods. This document is intended to address this need, in part, by providing information regarding sample containers, preservation, size, packaging and sources for additional information supporting collection of chemical, radiochemical and biotoxin samples to be analyzed using the methods selected. As with SAM 2017, HSRP plans to update the information in this document periodically, to reflect changes to the analytes addressed and/or methods that have been selected.

> The information contained in this document is intended to support and be used with the methods listed in EPA's SAM 2017. The information will be reviewed and updated periodically, along with the selected methods, to reflect advances in technologies, results of method evaluation and validation studies, and additional analytes or matrices.

2.0 Scope and Application

This Sample Collection Information Document (SCID) provides general information for use by EPA and its contractors when collecting samples during environmental remediation following a contamination incident. The document is intended to be used with SAM 2017 (EPA/600/R-17/356; U.S. EPA 2017) and to provide information needed for collection of samples to be analyzed using the specific methods and procedures that have been selected for chemicals, radiochemicals and biotoxins. Where possible, the information provided was obtained from the sample collection requirements and guidelines included in the analytical methods. Where this information was not available, additional sources were used (see Section 7.0).

The information in this document is intended to be used during site assessment, remediation and clearance activities following a contamination incident; it assumes that samples will be collected

[1] *Selected Analytical Methods for Environmental Remediation and Recovery* (SAM) and its methods are available at: https://www.epa.gov/homeland-security-research/sam.

by personnel trained in collection of environmental samples suspected of containing the target analytes and in dealing with the corresponding safety concerns. Information is included regarding containers, collection volume or weight, preservation, holding times, and packaging of samples representing the sample types and analytes included in SAM 2017. Sample collection information for pathogens is addressed in a separate document.[2] Sample collection personnel should consult the incident-specific Sample Collection Plan (SCP) and/or receiving laboratory(ies) prior to initiating sample collection activities.

NOTE: It is possible that some of the information in this document should be modified to address site- or incident-specific data needs; for example, additional sample volume may be needed for quality control (QC) or in cases where an unusually low level is required to meet site clearance goals. Sample Collection Plans (SCPs) should be in place and consulted for specific sample collection requirements prior to initiation of sample collection activities. Site- or incident-specific SCPs include information regarding laboratory capacity; the extent of contamination; target analytes, including their preservation and holding times; data quality objectives; sample locations; and the number and type of samples needed.

2.1 Sample Collection Information Attachments

This document contains the following attachments listing information for collection of samples that will be analyzed for measurement of the analytes listed in *Selected Analytical Methods for Environmental Remediation and Recovery*:

- Attachment A: Sample Collection Information for the Chemical Analytes and Methods Listed in SAM 2017
- Attachment B1: Sample Collection Information for the Environmental Samples, Radiochemical Analytes and Methods Listed in SAM 2017
- Attachment B2: Sample Collection Information for the Outdoor Building and Infrastructure Materials, Radiochemical Analytes and Methods Listed in SAM 2017
- Attachment C: Sample Collection Information for the Biotoxins and Methods Listed in SAM 2017

Each attachment provides the sample size that should be collected to support sample analysis, the preservatives and/or temperature needed to maintain sample integrity prior to analysis, the maximum amount of time that should elapse between sample collection and the initiation of analytical procedures (e.g., sample analysis, digestion or extraction), the appropriate type of container, the sample label and packaging procedures needed for sample shipment, and the source(s) used to provide the information. The information in each attachment is arranged by analyte and corresponds to the sample types that are addressed by the analytical methods that have been selected.

2.2 Document Development

EPA employed several references to identify the information that is included in this

[2] EPA's *Sample Collection Information Document for Pathogens – Companion to SAM 2017* (U.S. EPA. EPA/600/R-17/374) is available at: https://www.epa.gov/homeland-security-research/sam-companion-documents-and-sample-collection-procedures

document. The first sources consulted were the methods listed in SAM 2017. These methods are listed in the "Selected Analytical Methods" columns throughout Appendices A, B1, B2 and C. If the selected methods include sample collection information, the information was evaluated and, if appropriate, included in the sample collection information tables provided in Attachments A, B1, B2 and C. The second sources consulted were EPA procedures for collection of samples addressing the specific analyte/matrix pairs. If there were no EPA procedures available, other federal agency or Voluntary Consensus Standards Body (VCSB)[3] methods were consulted, and best professional judgment applied by technical work groups to address collection of each of the analyte/sample type pairs. In many cases, information was adjusted for consistency across similar analytes (e.g., volatile organic compounds) and sample types, to facilitate sample collection without compromising analytical results.

Information was evaluated from the following agencies, organizations, and publications:

- EPA – United States Environmental Protection Agency
- AOAC International (formerly Association of Official Analytical Chemists)
- ASTM – ASTM International (formerly American Society for Testing and Materials)
- CFR – Code of Federal Regulations
- U.S. CDC – United States Centers for Disease Control and Prevention
- USDA – United States Department of Agriculture
- U.S. DHS – United States Department of Homeland Security
- U.S. DOE – United States Department of Energy
- U.S. DOL – United States Department of Labor
- U.S. DOT – United States Department of Transportation
- U.S. FDA – United States Food and Drug Administration
- USGS – United States Geological Survey
- IATA – International Air Transport Association
- ISO – International Organization for Standardization
- NEMI – National Environmental Methods Index
- NIOSH – National Institute for Occupational Safety and Health
- OPCW – Organisation for the Prohibition of Chemical Weapons
- OSHA – Occupational Safety and Health Administration
- *Standard Methods for the Examination of Water and Wastewater*, 22nd Edition. 2005. American Public Health Association
- Journals: *Analyst, Chromatographia, European Journal of Lipid Science and Technology, Journal of Chromatography A, Journal of Chromatography B, Journal of Forensic Sciences, Water Research*

Sample collection information was not identified for all the analyte/sample type pairs listed in SAM 2017. In some cases, "TBD" (to be determined) is used to identify gaps of information that have yet to be determined. In other cases, analytes are listed as not a concern in a particular sample type; in these cases, SAM work groups have determined that the analyte is not a concern due to a number of factors, including low likelihood of persistence, toxicity, mobility or solubility.

[3] EPA OMB Circular No. A-119, February 1998. VCSBs are domestic or international organizations which plan, develop, establish, or coordinate voluntary consensus standards using agreed-upon procedures. Under the National Technology Transfer and Advancement Act (NTTAA), participation of federal representatives in VCSBs is encouraged to increase the likelihood that the standards they develop will meet both public and private sector needs.

2.3 Limitations

This document provides summary information only regarding collection of samples to be analyzed for measurement of the chemicals, radiochemicals and biotoxins listed in SAM 2017. It does not provide details regarding sample collection procedures or the corresponding analytical methods. Although at this time much of the information has not been tested for some of the analytes or sample types, the information listed is considered to be the most appropriate currently available. Many of the target analytes listed in this document have only recently become an environmental concern, and EPA is actively pursuing development and validation of appropriate sample collection procedures. Users should consult the SAM website for periodic updates: https://www.epa.gov/homeland-security-research/sam.

Sample collection plans must be consulted for site- or incident-specific requirements, including QC and reporting. The information sources cited in this document also should be consulted for additional details regarding sample collection, including QC requirements, sample handling, packaging, shipping, and safety procedures. Sample collectors should check with the incident commanders for special instructions regarding evidentiary matters prior to sample collection.

3.0 Health and Safety Considerations

This document assumes that a site- or incident-specific Health and Safety Plan (HASP) is in place that includes the safety concerns and requirements regarding the specific types of hazards that should be considered during sample collection. This section provides general guidelines regarding health and safety concerns. At a minimum, all sampling team members should be trained in Occupational Safety and Health Administration (OSHA) requirements for hazardous waste operations and emergency response at 29 CFR 1910.120 or 29 CFR 1926.65 and have current medical screening.

3.1 Health and Safety Plans

Health and Safety Plans (HASPs) will vary depending on the site, the sampling phase (site assessment, remediation or final status determination) and the responsible organization. The purpose of these plans is to ensure maximum protection to workers, the environment and surrounding communities, in a way that is consistent with requirements needed to perform operational activities. HASPs should follow guidelines provided by OSHA at: https://www.osha.gov/Publications/OSHA3114/OSHA-3114-hazwoper.pdf (last accessed September 2017). At a minimum, HASPs should include instructions and guidelines regarding:

- Names, positions, and contact information of key personnel and of health and safety personnel
- Site- or incident-specific risk assessment addressing sample collection activities
- Training requirements
- Personal protective equipment (PPE) on site and usage requirements
- Medical screening requirements (maintain confidential documents properly and securely)
- Site or incident control
- Emergency response plan, containing off-site emergency contact information such as local hazardous materials response teams or additional trained rescue personnel (29 CFR 1910.38)

- Entry and egress procedures
- Spill containment
- Decontamination procedures

NOTE: Entry and decontamination procedures should address personnel monitoring and decontamination during entry and egress.

3.2 Personal Protective Equipment and Monitoring

Each site or incident also will dictate the level of PPE that will be required. Selection of protective clothing is dependent on site conditions and sample collection requirements included in the SCP. Specific guidance for selection of PPE is provided in 29 CFR 1910.120, Appendix B. Factors that should be considered during selection include: contaminant identification, routes of exposure (i.e., inhalation, skin absorption, ingestion and injection), performance of equipment in protecting against exposure, activity duration, and stress induced by work requirements. Because the use of PPE can also cause hazards to workers (e.g., heat stress, impaired vision and mobility), care should be taken to provide a level of protection that is sufficient to prevent exposure yet is not so high as to create other unnecessary hazards.

3.3 Training

Sample collectors must be trained in collection and handling of samples suspected of containing the contaminants of concern (see Attachments A, B1, B2 and C) and must be up to date regarding medical screening requirements. Additionally, sample collectors and packers must be trained in and comply with the site HASP and all site-specific training requirements, including the following:

- Ability to select and work with the appropriate level of PPE
- Ability to utilize personnel monitoring equipment
- Decontamination procedures
- Prevention of sample cross-contamination
- Training frequency and documentation

4.0 Preparation for Sample Collection

It is highly recommended that sampling kits be used during sample collection, and that these kits be properly equipped, maintained, and organized before deployment of sample collection personnel. These kits should be checked for quality assurance prior to initiation of sample collection activities. Sample collectors should consult with project managers and the SCP to determine what equipment and materials should be assembled, whether samples should be preserved in the field, and how sample containers will be packaged for shipment. Prior to sample collection, sample collectors should also contact the laboratory that will be analyzing the samples to understand laboratory-specific requirements. Sample kits should contain all containers, materials, supplies and forms needed to perform sample collection, decontamination, documentation and field packaging activities. Procedures for preparing samples for shipment should be in place and understood.

4.1 Field Sampling Equipment and Supplies

Before starting field sampling activities, all necessary equipment and supplies should be checked, identified and available. The following is a preliminary list:

- Sampling devices (e.g., soil coring device, water autosampler, air filter canister or collection tube, wipes)
- Preservatives and dechlorinating agents (if feasible, it is recommended that preservatives and dechlorinating agents be added to sample containers prior to sample collection)
- Sample volumetric measuring devices and/or weighing devices
- Sample containers and packaging materials, including ice
- PPE
- Record keeping devices (e.g., logs, chain-of-custody [COC] forms, writing instruments)
- Site maps, Global Positioning System (GPS) recorders, etc.
- Sample location markers
- Shipping containers, shipping forms, and shipping labels
- Waste containers
- Materials for cleaning equipment and sample container exteriors

Samples should be collected using dedicated, sterile or sufficiently clean sampling equipment to minimize interferences and cross-contamination. In some cases, pre-packaged equipment and materials are available and can be used for efficiency. When disposable equipment is not used, contaminated equipment must be appropriately cleaned and decontaminated prior to reuse.

4.2 Field Data Documentation

All data collected in the field should be adequately documented. Documented information should include (for example):

- Names of field sampling personnel
- Sample Collection Plan (SCP)
- Sample location(s)
- Date and time of sampling
- Sample identification number
- Sampling depth
- Sample type
- Sample collection medium
- Physical and meteorological conditions
- Expected contaminants
- Expected radionuclides (if applicable)
- Sample size (weight, volume), sample duration (air filters), air volume, etc.
- Sample handling precautions

Radiological dose rate measurements of samples performed in the field should be documented and transmitted to the laboratory along with the samples. Documentation should include the background count rates; units; and the type, serial number and

calibration date of the instrument used to obtain the dose rate. It is EPA Policy to use Scribe[4] wherever practical to collect, store and report sampling and analytical data.

4.3 Equipment Operation and Calibration

Sampling equipment should be verified to be in working order before it is deployed with the sampling teams. Equipment should be operated in accordance with manufacturer's operating instructions (unless otherwise specified in the SCP). Equipment also should undergo routine maintenance according to manufacturer instructions, and be calibrated and the calibration documented prior to use.

5.0 Preparation of Sample Containers

5.1 Sample Container Labels

Each sample container has a label that provides information uniquely identifying and describing the sample. A single, unique label is affixed to each individual sample container, sample information is added in waterproof ink, and the label is covered with clear tape. Alternatively, a pre-prepared label that uniquely identifies the sample, such as a bar code that tracks the sample information, can be affixed to the container. Sample container labels include information regarding the date and time of sample collection; sample collection site; date, time and type of sample preservation; sample identification numbers; and the names and signatures of sample collectors.

5.2 Preparing Sample Containers for Packaging

Once samples have been collected and preserved as specified, the containers are prepared for shipment to the analytical laboratory. Sample containers should be labeled, sealed, and decontaminated and/or disinfected prior to packing into transport or shipping containers. For samples containing radionuclides, each sample container should have dose rate measurements taken and surface contamination surveys completed, and the results recorded on a field sample tracking form (see EPA's *Sample Collection Procedures for Radiochemical Analytes in Environmental Matrices*, July 2012 and *Sample Collection Procedures for Radiochemical Analytes in Outdoor Building and Infrastructure Materials*, September 2016). Summary procedures for cleaning and sealing sample containers are provided in the tables included in Attachments A, B1, B2 and C. General information regarding packing samples into transport containers outside the contaminated area is provided as a footnote to each table.

5.3 General Sample Shipment Guidelines

Sample collectors are responsible for ensuring compliance with DOT and IATA regulations regarding the transfer of hazardous substances and environmental samples. Regulations 49 CFR 172 and 173 for DOT (organized by separate subparts as references in Section 7.0), and the Dangerous Goods Regulations (DGR) for IATA, provide specific details regarding proper marking, labeling, placarding, packaging and shipment of hazardous materials, substances and wastes. Regulatory exceptions, such as those for

[4] Scribe is a software tool developed by EPA's Environmental Response Team (ERT) to assist in managing environmental data. For additional information regarding this tool see https://www.epa.gov/ert/environmental-response-team-information-management (last accessed September 2017).

shipping environmental samples, are also included. These regulations must be consulted prior to preparation of or planning for sample shipment. Summary information regarding appropriate labeling and packaging of sample transport containers is provided in the sample collection information tables included in Attachments A, B1, B2 and C.

5.4 Chain-of-Custody Forms

COC forms create a written record that can be used to trace the creation, possession, and handling of the sample from the moment of its collection through analysis. A COC form accompanies each sample or group of samples as custody of the sample(s) is transferred from one custodian to another. One copy of the form is retained by the original sample collector. If multiple laboratories are receiving a sample, individual COCs are provided to each individual laboratory, each COC representing the contents of the sample shipment. Sample collectors are responsible for the initial maintenance and completion of COC forms. Although COC forms vary in style, format and detail, the forms should contain the same minimal information required to identify the sample and to document custody. EPA policy is to use Scribe (see Section 4.2) wherever practical to generate COC forms.

At a minimum, sample collectors are responsible for providing the following information on the COC form:

- General incident information (sample owners, contact information, site name)
- Sample information (e.g., sample identification number, sample type [matrix], whether grab or composite, number and type of sample containers, and date/time sample was collected)
- Date and time the sample was relinquished
- Signature of persons transferring and receiving the samples

5.5 Custody Seals / Tamper-evident Bags

Custody seals are attached over the cap of each sample container to ensure the sample has not been opened or tampered with after collection and packaging. A custody seal also can be placed over the shipping or transport container, making it impossible to open the container without ripping the seal. Typically, there is one seal per sample container and two seals are placed on opposite sides of the shipping container. Custody seals contain the signature of the person responsible for packing the container and the date sealed. The seal must be sturdy to resist incidental contact but able to break when the cap or lid is moved. Sample collectors should:

- Sign and date the sample custody seal using waterproof ink, usually a 1- by 3-inch white paper label with black lettering and an adhesive backing. The custody seal is part of the COC process and is used to prevent or identify tampering with samples.
- Place the custody seal across the container lid so that the seal will be broken if a container is opened. If a cooler is used, ensure that the water drainage point is secure.

Alternatively, sample containers may be placed into a tamper-evident bag. Bags/seals with a unique identifier must be associated with the person collecting the sample through logbook entries, preservation of tear-off strips in the logbook, or similar means. When using a tape-type tamper-evident seal, the initials of the person securing the container and the date that it was secured must be recorded on the seal.

6.0 Definitions

The following definitions are provided to describe the sample collection information listed in the tables in Attachments A, B1, B2 and C:

- **Analyte** – The chemical compound, class of compound, radionuclide, radioactivity or biotoxin that will be analyzed/measured in the sample. The analytes in this document are intended to address the analytes listed in SAM 2017.

- **Selected Analytical Method** – The analytical methods selected by technical work group members to address the target analytes.

  Tiers are provided for the chemistry methods cited in Attachment A and the biotoxin methods cited in Attachment C, to indicate the level of method usability assigned for the specific analyte and sample type.

  - For chemistry methods, these tiers are described in SAM 2017 as:

    Tier I: Analyte/sample type is a target of the method(s). Data are available for all aspects of method performance and quality control measures supporting its use for analysis of environmental samples following a contamination incident. Evaluation and/or use of the method(s) in multiple laboratories indicate that the method can be implemented with no additional modifications for the analyte/sample type.
    Tier II: (1) The analyte/sample type is a target of the method(s) and the method(s) has been evaluated for the analyte/sample type by one or more laboratories, or (2) the analyte/sample type is not a target of the method(s), but the method has been used by laboratories to address the analyte/sample type. In either case, available data and/or information indicate that modifications will likely be needed for use of the method(s) to address the analyte/sample type.
    Tier III: The analyte/sample type is not a target of the method(s), and/or no reliable data supporting the method's fitness for its intended use are available. Data from other analytes or sample types, however, suggest that the method(s), with significant modification, may be applicable.

  - For biotoxin methods, these tiers are described in SAM 2017 as:

    Tier I: The biotoxin and sample type are both targets of the method(s). Data are available for all aspects of method performance and QC measures supporting its use without modifications.
    Tier II: The biotoxin is a target of the method, and the method has been evaluated by one or more laboratories. The sample type may or may not be a target of the method, and available data and/or information regarding sample preparation indicate that analyses of similar sample types were successful. However, additional testing and/or modifications may be needed.
    Tier III: The sample type is not a target of the method, and no reliable data supporting the method's fitness for its intended use are available. Data suggest, however, that the method(s) may be applicable with significant modification.

  Method types are provided for the radiochemistry methods cited in Attachment B1 and the biotoxin methods cited in Attachment C, to indicate the intended analytical purpose.

  - For radiochemistry methods, these method types are described in SAM 2017 as:

Qualitative: The identified method is intended to determine the presence of a radionuclide. Although quantitative, these methods have been selected as qualitative methods since they can be utilized with shorter counting times, at greater uncertainty, when increased sample throughput and more rapid reporting of results are required.
Confirmatory: The identified method is for measurement of the activity from a particular radionuclide per unit of mass, volume or area sampled.

- For biotoxin methods, these method types are described in SAM 2017 as:

Presumptive: Presumptive methods are generally more rapid than confirmatory methods, and might be used during the initial stages of remediation to evaluate the extent of contamination. Presumptive methods also might be used to identify samples that should be analyzed using the more extensive confirmatory methods, and can be adapted for large-scale sample analysis while maintaining an appropriate level of analytical certainty.
Confirmatory: Confirmatory methods are generally more time consuming and expensive, and are intended to provide results with a higher level of certainty than those provided by presumptive methods. These methods should be considered for use when presumptive analysis indicates the presence of the biotoxin, a smaller subset of samples requires analysis, or as required for a tiered approach to remediation.
Biological Activity: Methods that address biological activity tend to be time consuming and expensive, and are intended to provide a high level of certainty in corroborating results of presumptive and/or confirmatory assays. Depending on the goals of the remediation phase, biological activity methods may also be needed to determine bioactivity of a given biotoxin detected by a presumptive and/or confirmatory assay that responds to inactivated or non-viable biotoxin.

- **Container** – The type of container (e.g., bottle, bag) that must be used to hold the sample. The container must be sufficient to maintain sample integrity and be composed of materials that will remain inert when in contact with the sample.

- **Holding Time** – The maximum amount of time allowable from sample collection until sample analysis or extraction. The actual holding time depends on the target analyte(s), the analytical method that will be used, and the data requirements for the contamination incident. Sample collectors should consult the analytical method and/or receiving laboratory for confirmation.

- **Packaging** – Sample container packaging requirements for shipment of samples to the laboratory.

- **Preservation** – Conditions and/or chemicals used to maintain the integrity of a sample. Some examples of common preservatives include nitric acid, hydrochloric acid, sodium thiosulfate, and temperatures in the range of 0–6 °C. The actual preservation requirements depend on the target analyte(s), the analytical method that will be used, and the data requirements for the contamination incident. Sample collectors should consult the analytical method and/or receiving laboratory for confirmation.

- **Sample Size** – The amount of sample that should be collected for a minimum of one analysis. The actual volume and weight requirements depend on the target analyte(s), the analytical method that will be used, and the data requirements for the contamination incident. Sample collectors should consult the analytical method and/or receiving laboratory for confirmation.

- **Sample Type** – The type of material to be collected for analysis (e.g., air, drinking water, non-drinking water, solid, soil and sediment, wipe, vegetation). In cases where the same analytical method(s) is indicated for analysis of both drinking and non-drinking water sample types, the sample types and corresponding sample collection information are combined into a single row.

- **Sampling Device/Medium** – The device or medium used to collect samples to be analyzed for biotoxins.

- **Shipping Label** – U.S. DOT shipping label requirements under 49 CFR 172 and 173.

7.0 Bibliography

Analytical methods listed in Attachments A, B1, B2 and C can be accessed through the EPA Homeland Security Research Program's Sampling and Analytical Methods website at https://www.epa.gov/homeland-security-research/sam. In addition to these methods, the following resources were used to prepare this document:

- U.S. Centers for Disease Control and Prevention. December 2009. *Biosafety in Microbiological and Biomedical Laboratories*, 5th Edition. https://www.cdc.gov/biosafety/publications/bmbl5/bmbl.pdf (accessed September 2017)

- U.S. Department of Energy. March 1979. "Radiochemical Analytical Procedures for Analysis of Environmental Samples." Environmental Monitoring and Support Laboratory. EMSL-LV-0539-17. http://www.health.state.mn.us/divs/phl/accreditation/docs/refmethodepa053917.pdf (accessed September 2017).

- U.S. Department of Labor. 29 CFR 1910.120, "Hazardous Waste Operations and Emergency Response," 29 CFR 1910.120, Appendix B, "General Description and Discussion of the Levels of Protection and Protective Gear," and 1910.38 "Emergency Action Plans." http://www.osha.gov/pls/oshaweb/owasrch.search_form?p_doc_type=STANDARDS&p_toc_level=1&p_keyvalue=1910 (accessed September 2017).

- U.S. Department of Labor. 29 CFR 1926.65. "Hazardous Waste Operations and Emergency Response." http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10651 (accessed September 2017).

- U.S. Department of Transportation. 49 CFR 172.101. "Purpose and Use of Hazardous Materials Table." http://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title49/49cfr172_main_02.tpl (accessed September 2017).

- U.S. Department of Transportation. 49 CFR 172.301. "General Marking Requirements for Non-bulk Packagings." http://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title49/49cfr172_main_02.tpl (accessed September 2017).

- U.S. Department of Transportation. 49 CFR 173. "Shippers – General Requirements for Shipments and Packaging." http://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title49/49cfr173_main_02.tpl (accessed September 2017).

  - 49 CFR 173.132. "Class 6, Division 6.1–Definitions." http://www.ecfr.gov/cgi-bin/text-

idx?SID=dfbaf3da73f9cebe9c9bc1aed8520d97&mc=true&node=se49.2.173_1132&rgn=div8 (accessed September 2017).

- 49 CFR 173.150. "Exceptions for Class 3 (flammable and combustible liquids)." http://www.ecfr.gov/cgi-bin/text-idx?SID=dfbaf3da73f9cebe9c9bc1aed8520d97&mc=true&node=se49.2.173_1150&rgn=div8 (accessed September 2017).
- 49 CFR 173.153. "Exceptions for Division 6.1 (poisonous materials)." http://www.ecfr.gov/cgi-bin/text-idx?SID=dfbaf3da73f9cebe9c9bc1aed8520d97&mc=true&node=se49.2.173_1153&rgn=div8 (accessed September 2017).
- 49 CFR 173.154. "Exceptions for Class 8 (corrosive materials)." http://www.ecfr.gov/cgi-bin/text-idx?SID=dfbaf3da73f9cebe9c9bc1aed8520d97&mc=true&node=se49.2.173_1154&rgn=div8 (accessed September 2017).
- 49 CFR 173.24 and 173.24a. "General Requirements for Packaging" and "Packages and Additional General Requirements for Non-bulk Packaging and Packages." http://www.ecfr.gov/cgi-bin/text-idx?SID=ee650c0b6877d30fc0c3bb9637a4b9c3&mc=true&node=se49.2.173_124&rgn=div8 (accessed September 2017) and http://www.ecfr.gov/cgi-bin/text-idx?SID=ee650c0b6877d30fc0c3bb9637a4b9c3&mc=true&node=se49.2.173_124a&rgn=div8 (accessed September 2017).
- 49 CFR 173.403. "Definitions." http://www.ecfr.gov/cgi-bin/text-idx?SID=dfbaf3da73f9cebe9c9bc1aed8520d97&mc=true&node=se49.2.173_1403&rgn=div8 (accessed September 2017).
- 49 CFR 173.453. "Fissile Materials – Exceptions." http://www.ecfr.gov/cgi-bin/text-idx?SID=dfbaf3da73f9cebe9c9bc1aed8520d97&mc=true&node=se49.2.173_1453&rgn=div8 (accessed September 2017).

- U.S. Environmental Protection Agency. 40 CFR 61, Appendix B. "Standards of Performance for New Stationary Sources, Performance Specifications – Test Methods." http://www.ecfr.gov/cgi-bin/text-idx?SID=4ac359277bd96162371110314291e70b&node=40:9.0.1.1.1.29.1.21.5&rgn=div9 (accessed September 2017).
- U.S. Environmental Protection Agency. July 2012. "Sample Collection Procedures for Radiochemical Analytes in Environmental Matrices." EPA/600/R-12/566, National Homeland Security Research Center. Cincinnati, OH. https://www.epa.gov/sites/production/files/2015-07/documents/sample_collection_procedures_for_radiochemical_analytes.pdf (accessed September 2017).
- U.S. Environmental Protection Agency. September 2016. "Sample Collection Procedures for Radiochemical Analytes in Outdoor Building and Infrastructure Materials." EPA/600/R-16/128, National Homeland Security Research Center. Cincinnati, OH. https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=335065 (accessed September 2017).

- U.S. Environmental Protection Agency. Office of Solid Waste and Emergency Response (OSWER), SW-846 Methods on Line. http://www.epa.gov/osw/hazard/testmethods/sw846/online/ (accessed September 2017).
- U.S. Environmental Protection Agency. Office of Water. February 2017. Sampling Guidance for Unknown Contaminants in Drinking Water. EPA-817-R-08-003. https://www.epa.gov/waterlabnetwork/sampling-guidance-unknown-contaminants-drinking-water (accessed September 2017)
- U.S. Office of Management and Budget. January 27, 2016. 81 Federal Register 4673: Revisions of OMB Circular No. A-119 "Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities." https://www.gpo.gov/fdsys/pkg/FR-2016-01-27/pdf/2016-01606.pdf (accessed September 2017).
- U.S. Environmental Protection Agency. September 2017. *Selected Analytical Methods for Environmental Remediation and Recovery (SAM) 2017*. EPA/600/R-17/356, National Homeland Security Research Center. Cincinnati, OH. https://www.epa.gov/homeland-security-research/sam (accessed September 2017).

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Attachment A

Sample Collection Information for the Chemical Analytes and Methods Listed in SAM 2017

[Note: The acronyms and abbreviations used in this attachment are listed and defined in the beginning of the report.]

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Attachment A: Sample Collection Information for the Chemical Analytes and Methods Listed in SAM 2017

Note: In some cases, analytes are listed as not a concern in a particular sample type; in these cases, SAM work groups have determined that the analyte is not a concern due to a number of factors, including low likelihood of persistence, toxicity, mobility or solubility.

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Acephate	**J. Chromatogr. A (2007) 1154(1):** 3-25 [Tier III]	**Air**	TBD	TBD	Until holding time data are available, analyze immediately/ as soon as possible	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
	Chromatographia, 63(5/6): 223-237 [Tier II]	**Non-Drinking Water**	1 L	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018
	538 (EPA OW) [Tier I]	**Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	• Prior to collection, add 400 µL of ammonium acetate concentrated stock and 80 µL of concentrated sodium omadine stock to sample container [Concentrations of ammonium acetate and sodium omadine in the sample should be 1.5 g/L and 64 mg/L, respectively.] • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018
	J. Chromatogr. A (2007) 1154(1): 3-25 [Tier II]	**Solid**	250 mL	Wide-mouth glass or fluoropolymer container with fluoropolymer-lined lid	Until holding time data are available, analyze immediately/ as soon as possible	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
	J. Chromatogr. A (2007) 1154(1): 3-25 [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth glass or fluoropolymer container with fluoropolymer-lined lid	Until holding time data are available, analyze immediately/ as soon as possible	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Acrylamide	**PV2004** (OSHA) [Tier I]	**Air**	120 L (flow rate = 1 L/min)	Filter/solid sorbent tube (13mm quartz fiber filter) • OVS-7 tube (XAD-7 resin) • OVS-2 (XAD-2 resin) • OVS-SG (silica gel)	13 days	Cool to ≤ 6°C	Wipe outside of sorbent tube clean using a damp, then dry cloth. Cap both ends of the tube with plastic caps. Place tube in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Acrylamide, solid, 6.1, Poison, UN2074
	8316 (EPA SW-846) [Tier II]	**Drinking Water** **Non-Drinking Water**	1 L	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	• Add sodium thiosulfate to remove residual chlorine from treated water samples[5] • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Acrylamide solution, 6.1, Poison, UN3426
	Water Extraction / **8316** (EPA SW-846) [Tier III]	**Solid**	250 mL	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septa or lid	14 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Acrylamide, solid, 6.1, Poison, UN2074
	3570 / 8290A Appendix A / **8316** (EPA SW-846) [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Acrylamide, solid, 6.1, Poison, UN2074
Acrylonitrile	**PV2004** (OSHA) [Tier III]	**Air**	120 L (flow rate = 1 L/min)	Filter/solid sorbent tube (13mm quartz fiber filter) • OVS-7 tube (XAD-7 resin) • OVS-2 (XAD-2 resin) • OVS-SG (silica gel)	13 days	Cool to ≤ 6°C	Wipe outside of sorbent tube clean using a damp, then dry cloth. Cap both ends of the tube with plastic caps. Place tube in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Acrylonitrile, stabilized, 3, Flammable liquid, 6.1, Poison, UN1093
	524.2 / 524.3 / 524.4 (EPA OW) [Tier II]	**Drinking Water** **Non-Drinking Water**	40 mL	Amber glass or fluoropolymer screw cap VOA vial with fluoropolymer-lined septum, filled with no headspace	14 days with acidification; 24 hours if not acidified	Prior to collection of treated water samples, add 25 mg ascorbic acid to container for removal of residual chlorine <u>Method 524.2</u>: • Adjust to pH < 2 with 1:1 HCl <u>Methods 524.3 and 524.4</u>: • Adjust to pH < 2 with maleic acid <u>For all samples</u>: • If residual chlorine is > 5 mg/L, add an additional 25 mg ascorbic acid per each 5 mg/L chlorine • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Acrylonitrile, stabilized, 3, Flammable liquid, 6.1, Poison, UN1093
	5035A / 8260D (EPA SW-846) [Tier II]	**Solid**	5-g coring device or amber VOA vial AND 1 – 2 oz. glass jar (if needed to determine percent moisture)	Coring device (If coring device is to be cleaned and reused, samples can be transferred to an amber VOA vial.) AND glass jar (if needed to determine percent moisture)	14 days if frozen; 48 hours if not frozen	Cool to ≤6°C; freeze within 48 hours to ≤ negative (-) 7°C [Coring tools should not be frozen below -20°C.]	Wipe outside of coring device or container clean using a damp, then dry cloth. Place the coring device or container in a zipper bag. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Acrylonitrile, stabilized, 3, Flammable liquid, 6.1, Poison, UN1093

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
	3570 / 8290A Appendix A / **8260D** (EPA SW-846) [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Acrylonitrile, stabilized, 3, Flammable liquid, 6.1, Poison, UN1093
Aldicarb (Temik)	**5601** (NIOSH) [Tier I]	**Air**	240 – 480 L (flow rate = 0.1 – 1 L/min)	Filter/solid sorbent tube (OVS-2 tube: 13 mm quartz fiber filter, XAD-2 [270 mg/140 mg])	30 days if frozen; 7 days at room temperature (24°C)	Cool to ≤ 6°C	Wipe outside of sorbent tube clean using a damp, then dry cloth. Cap both ends of the tube with plastic caps. Place tube in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbamate pesticides, solid, toxic, 6.1, UN2757
	D7645-16 (ASTM) [Tier II]	**Non-Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	• Acidify to pH ≤ 3.8 with glacial acetic acid • Cool to ≤ 6°C; keep from freezing • Prior to collection of treated water samples, add 10 mg ascorbic acid to sample container	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbamate pesticides, liquid, toxic, 6.1, Poison, UN2992
	531.2 (EPA OW) [Tier I]	**Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	28 days	• Prior to collection, add 0.4 g potassium dihydrogen citrate and 3.2 – 4.8 mg sodium thiosulfate to sample container • Agitate for 1 minute after collection • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbamate pesticides, liquid, toxic, 6.1, Poison, UN2992
	8318A (EPA SW-846) [Tier II]	**Solid**	250 mL	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbamate pesticides, solid, toxic, 6.1, UN2757
	3570 / 8290A Appendix A / **8318A** (EPA SW-846) [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbamate pesticides, solid, toxic, 6.1, UN2757

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Aldicarb sulfone	**5601** (NIOSH) [Tier III]	**Air**	240 – 480 L (flow rate = 0.1 – 1 L/min)	Filter/solid sorbent tube (OVS-2 tube: 13 mm quartz filter, XAD-2, [270 mg/140 mg])	30 days if frozen; 7 days at room temperature (24°C)	Cool to ≤ 6°C	Wipe outside of sorbent tube clean using a damp, then dry cloth. Cap both ends of the tube with plastic caps. Place tube in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbamate pesticides, solid, toxic, 6.1, UN2757
	D7645-16 (ASTM) [Tier II]	**Non-Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	• Acidify to pH ≤ 3.8 with glacial acetic acid • Cool to ≤ 6°C; keep from freezing • Prior to collection of treated water samples, add 10 mg ascorbic acid to sample container	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbamate pesticides, liquid, toxic, 6.1, Poison, UN2992
	531.2 (EPA OW) [Tier I]	**Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	28 days	• Prior to collection, add 0.4 g potassium dihydrogen citrate and 3.2 – 4.8 mg sodium thiosulfate to sample container • Agitate for 1 minute after collection • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbamate pesticides, liquid, toxic, 6.1, Poison, UN2992
	8318A (EPA SW-846) [Tier II]	**Solid**	250 mL	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbamate pesticides, solid, toxic, 6.1, UN2757
	3570 / 8290A Appendix A / **8318A** (EPA SW-846) [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbamate pesticides, solid, toxic, 6.1, UN2757

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Aldicarb sulfoxide	**5601** (NIOSH) [Tier III]	**Air**	240 – 480 L (flow rate = 0.1 – 1 L/min)	Filter/solid sorbent tube (OVS-2 tube: 13 mm quartz filter, XAD-2, [270 mg/140 mg])	30 days if frozen; 7 days at room temperature (24°C)	Cool to ≤ 6°C	Wipe outside of sorbent tube clean using a damp, then dry cloth. Cap both ends of the tube with plastic caps. Place tube in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbamate pesticides, solid, toxic, 6.1, UN2757
	D7645-16 (ASTM) [Tier II]	**Non-Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	• Acidify to pH ≤ 3.8 with glacial acetic acid • Cool to ≤ 6°C; keep from freezing • Prior to collection of treated water samples, add 10 mg ascorbic acid to sample container	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbamate pesticides, liquid, toxic, 6.1, Poison, UN2992
	531.2 (EPA OW) [Tier I]	**Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	28 days	• Prior to sample collection, add 0.4 g potassium dihydrogen citrate and 3.2 – 4.8 mg sodium thiosulfate to sample container • Agitate for 1 minute after collection • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbamate pesticides, liquid, toxic, 6.1, Poison, UN2992
	8318A (EPA SW-846) [Tier III]	**Solid**	250 mL	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbamate pesticides, solid, toxic, 6.1, UN2757
	3570 / 8290A Appendix A / **8318A** (EPA SW-846) [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbamate pesticides, solid, toxic, 6.1, UN2757
Allyl alcohol	**TO-15** (EPA ORD) [Tier III]	**Air**	1-L or 6-L canister (depending on suspected concentration)[6]	Specially prepared stainless steel canister For subatmospheric pressure sampling, the canister is evacuated to 0.05 mm Hg; for pressurized sampling, the sample is collected using a pump and flow control arrangement to achieve a typical 101 – 202 kPa (15 – 30 psig)	30 days	None	Ship canister in container provided by laboratory	Standard carrier shipping label AND Allyl alcohol, 3, Flammable liquid, 6.1, Poison, UN1098
	5030C / 8260D (EPA SW-846) [Tier II]	**Drinking Water** **Non-Drinking Water**	40 mL	Amber glass or fluoropolymer screw cap VOA vial with fluoropolymer-lined septum, filled with no headspace	14 days with acidification; 7 days if not acidified	• Add sodium thiosulfate to remove residual chlorine from treated water samples[5] • Adjust to pH < 2 with 1:1 HCl • Cool to ≤ 6°C; keep from freezing	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Allyl alcohol, 3, Flammable liquid, 6.1, Poison, UN1098
	5035A / 8260D (EPA SW-846) [Tier II]	**Solid**	5-g coring device or amber VOA vial AND 1 – 2 oz. glass jar (if needed to determine percent moisture)	Coring device (If coring device is to be cleaned and reused, samples can be transferred to an amber VOA vial.) AND glass jar (if needed to determine percent moisture)	14 days if frozen; 48 hours if not frozen	Cool to ≤6°C; freeze within 48 hours to ≤ negative (-) 7°C [Coring tools should not be frozen below -20 °C.]	Wipe outside of coring device or container clean using a damp, then dry cloth. Place the coring device or container in a zipper bag. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Allyl alcohol, 3, Flammable liquid, 6.1, Poison, UN1098
	NA	**Wipes**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
4-Aminopyridine	NA	**Air**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	3535A / 8330B (EPA SW-846) [Tier III]	**Drinking Water** **Non-Drinking Water**	1 L	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	• Add sodium thiosulfate to remove residual chlorine from treated water samples[5] • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Aminopyridines, 6.1, Poison, UN2671
	8330B (EPA SW-846) [Tier III]	**Solid**	250 mL	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	Cool to≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Aminopyridines, 6.1, Poison, UN2671
	3570 / 8290A Appendix A / **8330B** (EPA SW-846) [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Aminopyridines, 6.1, Poison, UN2671
Ammonia	**6015** (NIOSH) [Tier I]	**Air**	0.1 (at 50 ppm) – 96 L (flow rate = 0.1 – 0.2 L/min)	Solid sorbent tube (sulfuric acid-treated silica gel)	Until holding time data are available, analyze immediately/ as soon as possible	Cool to ≤ 6°C	Wipe outside of sorbent tube clean using a damp, then dry cloth. Cap tube with plastic (not rubber) caps immediately after sampling. Place tubes in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND (if greater than 10% ammonia by volume) Ammonia solution, 8, Corrosive, UN2672
	4500- NH_3 B / 4500- NH_3 G (SM) [Tier I]	**Non-Drinking Water**	500 mL	Polyethylene or glass container	28 days with acidification; analyze immediately / as soon as possible if not acidified	• Cool to ≤ 6°C or acidify to pH < 2; keep from freezing • Add sodium thiosulfate to remove residual chlorine from treated water samples [5] (Can be added in the field or upon receipt in the laboratory.)	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND (if greater than 10% ammonia by volume) Ammonia solution, 8, Corrosive, UN2672
	350.1 (EPA OW) [Tier I]	**Drinking Water**	500 mL	Polyethylene or glass container	28 days	• Add sodium thiosulfate to remove residual chlorine from treated water samples [5] (Can be added in the field or upon receipt in the laboratory.) • Adjust to pH < 2 with H_2SO_4 • Cool to≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND (if greater than 10% ammonia by volume) Ammonia solution, 8, Corrosive, UN2672
	NA	**Solid**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	NA	**Wipes**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Ammonium metavanadate (analyze as total vanadium)	**IO-3.1 / IO-3.4 / IO-3.5** (EPA ORD) [Tier I]	**Air**	Up to 1700 m^3	Filter (quartz, silica, or cellulose fiber)	6 months	Cool to ≤ 6°C	Place filter in protective covering. Place protected filter in double plastic bags, and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Ammonium metavanadate, 6.1, Poison, UN2859
	3015A / 6010D/ 6020B (EPA SW-846) [Tier I]	**Non-Drinking Water**	125 mL	Fluoropolymer, plastic or glass container	6 months with acidification. Samples must be acidified within 14 days of collection.	• Acidify to pH < 2 with HNO_3[7] • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Ammonium metavanadate, 6.1, Poison, UN2859
	200.7 / 200.8 (EPA OW) [Tier I]	**Drinking Water**	125 mL	Fluoropolymer, plastic or glass container	6 months with acidification. Samples must be acidified within 14 days of collection.	• Acidify to pH < 2 with HNO_3[7] • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Ammonium metavanadate, 6.1, Poison, UN2859
	3050B / 3051A / 6010D / 6020B (EPA SW-846) [Tier I]	**Solid**	250 mL	Wide-mouth fluoropolymer, plastic or glass container	Analyze immediately / as soon as possible	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Ammonium metavanadate, 6.1, Poison, UN2859
	9102 (NIOSH) / **6010D / 6020B** (EPA SW-846) [Tier I]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth fluoropolymer, plastic or glass container	Analyze immediately / as soon as possible	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Ammonium metavanadate, 6.1, Poison, UN2859
Arsenic trioxide (analyze as total arsenic)	**IO-3.1 / IO-3.4 / IO-3.5** (EPA ORD) [Tier I]	**Air**	Up to 1700 m^3	Filter (quartz, silica, or cellulose fiber)	6 months	Cool to ≤ 6°C	Place filter in protective covering. Place protected filter in double plastic bags, and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Arsenic trioxide, 6.1, Poison, UN1561
	3015A / 6010D / 6020B (EPA SW-846) [Tier I]	**Non-Drinking Water**	125 mL	Fluoropolymer, plastic or glass container	6 months with acidification. Samples must be acidified within 14 days of collection.	• Acidify to pH < 2 with HNO_3[7] [If arsenic species are to be determined, remove unpreserved aliquot prior to sample preservation.] • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Arsenic trioxide, 6.1, Poison, UN1561
	200.7 / 200.8 (EPA OW) [Tier I]	**Drinking Water**	125 mL	Fluoropolymer, plastic or glass container	6 months with acidification. Samples must be acidified within 14 days of collection.	• Acidify to pH < 2 with HNO_3[7] [If arsenic species are to be determined, remove unpreserved aliquot prior to sample preservation.] • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Arsenic trioxide, 6.1, Poison, UN1561
	3050B / 3051A / **6010D / 6020B** (EPA SW-846) [Tier I]	**Solid**	250 mL	Wide-mouth fluoropolymer, plastic or glass container	Analyze immediately/ as soon as possible	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Arsenic trioxide, 6.1, Poison, UN1561
	9102 (NIOSH) / **6010D / 6020B** (EPA SW-846) [Tier I]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth fluoropolymer, plastic or glass container	Analyze immediately/ as soon as possible	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Arsenic trioxide, 6.1, Poison, UN1561

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Arsenic, Total	**IO-3.1 / IO-3.4 / IO-3.5** (EPA ORD) [Tier I]	**Air**	Up to 1700 m^3	Filter (quartz, silica, or cellulose fiber)	6 months	Cool to ≤ 6°C	Place filter in protective covering. Place protected filter in double plastic bags, and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Arsenic, 6.1, Poison, UN1558
	3015A / 6010D / 6020B (EPA SW-846) [Tier I]	**Non-Drinking Water**	125 mL	Fluoropolymer, plastic or glass container	6 months with acidification. Samples must be acidified within 14 days of collection.	• Acidify to pH < 2 with HNO_3[7] [If arsenic species are to be determined, remove unpreserved aliquot prior to sample preservation.] • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Arsenic, 6.1, Poison, UN1558
	200.7 / 200.8 (EPA OW) [Tier I]	**Drinking Water**	125 mL	Fluoropolymer, plastic or glass container	6 months with acidification. Samples must be acidified within 14 days of collection.	• Acidify to pH < 2 with HNO_3[7] [If arsenic species are to be determined, remove unpreserved aliquot prior to sample preservation.] • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Arsenic, 6.1, Poison, UN1558
	3050B / 3051A / 6010D / 6020B (EPA SW-846) [Tier I]	**Solid**	250 mL	Wide-mouth fluoropolymer, plastic or glass container	Analyze immediately/ as soon as possible	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Arsenic, 6.1, Poison, UN1558
	9102 (NIOSH) / **6010D / 6020B** (EPA SW-846) [Tier I]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth fluoropolymer, plastic or glass container	Analyze immediately/ as soon as possible	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Arsenic, 6.1, Poison, UN1558
Arsine (analyze as total arsenic in non-air samples)	**6001** (NIOSH) [Tier I]	**Air**	0.1 L (at 0.05 ppm) – 10 L (flow rate = 0.01 – 0.2 L/min)	Solid sorbent tube (coconut shell charcoal [100 mg/50 mg])	6 days	Cool to ≤ 6°C	Wipe outside of sorbent tube clean using a damp, then dry cloth. Cap tubes with plastic (not rubber) caps. Place tubes in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Arsine, 2.1, Flammable gas, 2.3, Poisonous gas, UN2188
	3015A / 6010D / 6020B (EPA SW-846) [Tier I]	**Non-Drinking Water**	125 mL	Fluoropolymer, plastic or glass container	6 months with acidification. Samples must be acidified within 14 days of collection.	• Acidify to pH < 2 with HNO_3[7] [If arsenic species are to be determined, remove unpreserved aliquot prior to sample preservation.] • Acidified samples can be cooled to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Arsine, 2.1, Flammable gas, 2.3, Poisonous gas, UN2188
	200.7 / 200.8 (EPA OW) [Tier I]	**Drinking Water**	125 mL	Fluoropolymer, plastic or glass container	6 months with acidification. Samples must be acidified within 14 days of collection.	• Acidify to pH < 2 with HNO_3[7] [If arsenic species are to be determined, remove unpreserved aliquot prior to sample preservation.] • Acidified samples can be cooled to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Arsine, 2.1, Flammable gas, 2.3, Poisonous gas, UN2188
	3050B / 3051A / 6010D / 6020B (EPA SW-846) [Tier I]	**Solid**	40 mL	Wide-mouth fluoropolymer, plastic or glass container	Analyze immediately/ as soon as possible	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Arsine, 2.1, Flammable gas, 2.3, Poisonous gas, UN2188
	9102 (NIOSH) / **6010D / 6020B** (EPA SW-846) [Tier I]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth fluoropolymer, plastic or glass container	Analyze immediately/ as soon as possible	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Arsine, 2.1, Flammable gas, 2.3, Poisonous gas, UN2188

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Asbestos	**10312:1995** (ISO) [Tier I]	**Air**	500 – 5000 L (flow rate = 1 –10 L/min)	Polycarbonate or cellulose ester filter	Samples can be held indefinitely	None	Place filter in protective covering. Place protected filter in double plastic bags, and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Asbestos, 9, Class 9, NA2212
	NA	**Non-Drinking Water**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	NA	**Drinking Water**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	D5755-03 (soft surfaces-microvac) (ASTM) [Tier III]	**Solid**	200 mL	Wide-mouth, sealable glass or fluoropolymer container	Samples can be held indefinitely	Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Asbestos, 9, Class 9, NA2212
	D6480-05 (ASTM) [Tier I]	**Wipes**	1 particle-free wipe/100 cm^2	Wide-mouth, sealable glass or fluoropolymer container	Samples can be held indefinitely	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Asbestos, 9, Class 9, NA2212
Boron trifluoride	**ID216SG** (OSHA) [Tier I]	**Air**	Up to 480 L (flow rate = 1 L/min)	Midget glass bubbler containing 10 mL of 0.1 M NH_4F; sample solution transferred to 20 mL glass vial with fluoropolymer-lined cap	Until holding time data are available, analyze immediately/ as soon as possible	Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Boron trifluoride, 2.3, Poisonous gas, UN1008
	NA	**Non-Drinking Water**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	NA	**Drinking Water**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	NA	**Solid**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	NA	**Wipes**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
Brodifacoum	NA	**Air**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	D7644-16 (ASTM) [Tier II]	**Drinking Water** **Non-Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	• Add 10 mg of dry ascorbic acid to each 40 mL vial prior to collection • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Coumarin derivative pesticides, liquid, toxic, 6.1, Poison, UN3023
	3541 / 3545A (EPA SW-846)/ **D7644-16** (ASTM) [Tier III]	**Solid**	250 mL	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septa or lid	14 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Coumarin derivative pesticides, solid, toxic, 6.1, Poison, UN3026
	3570 / 8290A Appendix A (EPA SW-846)/ **D7644-16** (ASTM) [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Coumarin derivative pesticides, solid, toxic, 6.1, Poison, UN3026

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Bromadiolone	NA	**Air**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	D7644-16 (ASTM) [Tier II]	**Drinking Water** **Non-Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	• Add 10 mg of dry ascorbic acid to each 40 mL vial prior to collection • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Coumarin derivative pesticides, liquid, toxic, 6.1, Poison, UN3023
	3541 / 3545A (EPA SW-846)/ **D7644-16** (ASTM) [Tier III]	**Solid**	250 mL	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Coumarin derivative pesticides, solid, toxic, 6.1, Poison, UN3026
	3570 / 8290A Appendix A (EPA SW-846)/ **D7644-16** (ASTM) [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Coumarin derivative pesticides, solid, toxic, 6.1, Poison, UN3026
[BZ] Quinuclidinyl benzilate	**TO-10A** (EPA ORD) [Tier III]	**Air**	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	Analyze as soon as possible until holding time are available	Cool to ≤ 6°C	Wrap cartridge in aluminum foil, and place in a clean sealed container. Place container in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	J. Chromatogr. B (2008) 874: 42-50 [Tier III]	**Drinking Water** **Non-Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	Analyze as soon as possible until holding time data are available	Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Wrap container with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	3541/3545A (EPA SW-846) **/ J. Chromatogr. B (2008) 874: 42-50** [Tier III]	**Solid**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	Analyze as soon as possible until holding time data are available	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Wrap container with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	3570/8290A Appendix A (EPA SW-846) **/ J. Chromatogr. B (2008) 874: 42-50** [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	Analyze as soon as possible until holding time data are available	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Wrap containers with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Calcium arsenate (analyze as total arsenic)	**IO-3.1 / IO-3.4 / IO-3.5** (EPA ORD) [Tier I]	**Air**	Up to 1700 m^3	Filter (quartz, silica, or cellulose fiber)	6 months	Cool to ≤ 6°C	Place filter in protective covering. Place protected filter in double plastic bags, and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Calcium arsenate, 6.1, Poison, UN1573
	3015A / 6010D / 6020B (EPA SW-846) [Tier I]	**Non-Drinking Water**	125 mL	Fluoropolymer, plastic or glass container	6 months with acidification. Samples must be acidified within 14 days of collection.	• Acidify to pH < 2 with HNO_3[7] [If arsenic species are to be determined, remove unpreserved aliquot prior to sample preservation.] • Acidified samples can be cooled to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Calcium arsenate, 6.1, Poison, UN1573
	200.7 / 200.8 (EPA OW) [Tier I]	**Drinking Water**	125 mL	Fluoropolymer, plastic or glass container	6 months with acidification. Samples must be acidified within 14 days of collection.	• Acidify to pH < 2 with HNO_3[7] [If arsenic species are to be determined, remove unpreserved aliquot prior to sample preservation.] • Acidified samples can be cooled to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Calcium arsenate, 6.1, Poison, UN1573
	3050B / 3051A / 6010D / 6020B (EPA SW-846) [Tier I]	**Solid**	250 mL	Wide-mouth fluoropolymer, plastic or glass container	Analyze immediately/ as soon as possible	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Calcium arsenate, 6.1, Poison, UN1573
	9102 (NIOSH) / **6010D / 6020B** (EPA SW-846) [Tier I]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth fluoropolymer, plastic or glass container	Analyze immediately/ as soon as possible	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Calcium arsenate, 6.1, Poison, UN1573

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Carbofuran (Furadan)	**5601** (NIOSH) [Tier I]	**Air**	240 – 480 L (flow rate = 0.1 – 1 L/min)	Filter/solid sorbent tube (OVS-2 tube: 13 mm quartz fiber filter, XAD-2 [270 mg/140 mg])	30 days if frozen; 7 days at room temperature (24°C)	Cool to ≤ 6°C	Wipe outside of sorbent tube clean using a damp, then dry cloth. Cap both ends of the tube with plastic caps. Place tube in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbamate pesticides, solid, toxic, 6.1, UN2757
	D7645-16 (ASTM) [Tier II]	**Non-Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	• Acidify to pH ≤ 3.8 with glacial acetic acid • Cool to ≤ 6°C; keep from freezing • Prior to collection of treated water samples, add 10 mg ascorbic acid to sample container	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbamate pesticides, liquid, toxic, 6.1, Poison, UN2992
	531.2 (EPA OW) [Tier I]	**Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	28 days	• Prior to collection, add 0.4 g potassium dihydrogen citrate and 3.2 – 4.8 mg sodium thiosulfate to sample container • Agitate for 1 minute after collection • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbamate pesticides, liquid, toxic, 6.1, Poison, UN2992
	8318A (EPA SW-846) [Tier II]	**Solid**	250 mL	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbamate pesticides, solid, toxic, 6.1, UN2757
	3570 / 8290A Appendix A / **8318A** (EPA SW-846) [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbamate pesticides, solid, toxic, 6.1, UN2757

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Carbon disulfide	**TO-15** (EPA ORD) [Tier I]	**Air**	1-L or 6-L canister (depending on suspected concentration)[6]	Specially prepared stainless steel canister For subatmospheric pressure sampling, the canister is evacuated to 0.05 mm Hg; for pressurized sampling, the sample is collected using a pump and flow control arrangement to achieve a typical 101 – 202 kPa (15 – 30 psig)	30 days	None	Ship canister in container provided by laboratory	Standard carrier shipping label AND Carbon disulfide, 3, Flammable liquid, 6.1, Poison, UN1131
	5030C / 8260D (EPA SW-846) [Tier I]	**Non-Drinking Water**	40 mL	Screw cap VOA vial with fluoropolymer-lined septum, filled with no headspace	14 days with acidification; 7 days if not acidified	• Add sodium thiosulfate to remove residual chlorine from treated water samples[5] • Adjust to pH < 2 with 1:1 HCl • Cool to ≤ 6°C; keep from freezing	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbon disulfide, 3, Flammable liquid, 6.1, Poison, UN1131
	524.2 / 524.3 / 524.4 (EPA OW) [Tier I]	**Drinking Water**	40 mL	Amber glass or fluoropolymer screw cap VOA vial with fluoropolymer-lined septum, filled with no headspace	14 days with acidification; 24 hours if not acidified	Prior to collection of treated water samples, add 25 mg ascorbic acid to container for removal of residual chlorine Method 524.2: • Adjust to pH < 2 with 1:1 HCl Methods 524.3 and 524.4: • Adjust to pH < 2 with maleic acid For all samples: • If residual chlorine is > 5 mg/L, add an additional 25 mg ascorbic acid per each 5 mg/L chlorine • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbon disulfide, 3, Flammable liquid, 6.1, Poison, UN1131
	5035A / 8260D (EPA SW-846) [Tier I]	**Solid**	5-g coring device or amber VOA vial AND 1 – 2 oz. glass jar (if needed to determine percent moisture)	Coring device (If coring device is to be cleaned and reused, samples can be transferred to an amber VOA vial.) AND glass jar (if needed to determine percent moisture)	14 days if frozen; 48 hours if not frozen	Cool to ≤ 6°C; freeze within 48 hours to ≤ negative (-) 7°C [Coring tools should not be frozen below -20°C.]	Wipe outside of coring device or container clean using a damp, then dry cloth. Place the coring device or container in a zipper bag. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbon disulfide, 3, Flammable liquid, 6.1, Poison, UN1131
	NA	**Wipes**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Carfentanil	NA	**Air**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	3520C / 3535A (EPA SW-846) / **J. Chromatogr. B (2014) 962**: 52-58 [Tier III]	**Drinking Water** **Non-Drinking Water**	1 L	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	• Add sodium thiosulfate to remove residual chlorine from treated water samples[5] • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organic, n.o.s., 6.1, toxic, UN2810
	3541 / 3545A (EPA SW-846) **J. Chromatogr. B (2014) 962**: 52-58 [Tier III]	**Solid**	250 mL	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organic, n.o.s., 6.1, toxic, UN2810
	3570 / 8290A Appendix A (EPA SW-846)/ **J. Chromatogr. B (2014) 962**: 52-58 [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organic, n.o.s., 6.1, toxic, UN2810
Chlorfenvinphos	**TO-10A** (EPA ORD) [Tier II]	**Air**	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	7 days	Cool to ≤ 6°C	Remove PUF cartridge from sampler, wrap with aluminum foil used to store cartridge, and place in a sealed container. Place container in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
	3520C / 3535A / 8270E (EPA SW-846) [Tier I]	**Drinking Water** **Non-Drinking Water**	1 L	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	• Add sodium thiosulfate to remove residual chlorine from treated water samples[5] • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Solid**	40 mL	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
Chlorine	**Analyst (1999) 124(12)**: 1853-1857/ **4500-Cl G (SM)** [Tier II]	**Air**	8 L (at 0.1 ppm) – 360 L (flow rate = 0.039 – 2.94 L/min)	Prefilter and filter (fluoropolymer, 0.5 µm and silver membrane, 25 mm, 0.45 µm)	30 days	Cool to ≤ 6°C	Place filter in protective covering. Place protected filter in double plastic bags, and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Chlorine, 2.3, 5.1, Oxidizer, 8, Poison gas, UN1017
	4500-Cl G (SM) [Tier I]	**Drinking Water** **Non-Drinking Water**	500 mL	Amber glass or fluoropolymer container	Until holding time data are available, analyze immediately/ as soon as possible	Cool to ≤ 6°C Avoid excessive agitation	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Chlorine, 2.3, 5.1, Oxidizer, 8, Poison gas, UN1017
	NA	**Solid**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	NA	**Wipes**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					

Analyte	Selected Analytical Methods –SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
2-Chloroethanol	**2513** (NIOSH) [Tier I]	**Air**	2 (at 5 ppm) – 35 L (flow rate = 0.01 – 0.2 L/min)	Solid sorbent tube (petroleum charcoal [100 mg/50 mg])	14 days	Cool to ≤ 6°C	Wipe outside of sorbent tube clean using a damp, then dry cloth. Cap tubes with plastic (not rubber) caps. Place tubes in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Ethylene chlorohydrin, 3, Flammable liquid, 6.1 Poison, UN1135
	5030C / 8260D (EPA SW-846) [Tier II]	**Drinking Water** **Non-Drinking Water**	40 mL	Amber glass or fluoropolymer screw cap VOA vial with fluoropolymer-lined septum, filled with no headspace	14 days with acidification; 7 days if not acidified	• Add sodium thiosulfate to remove residual chlorine from treated water samples.[5] • Adjust to pH < 2 with 1:1 HCl • Cool to ≤ 6°C; keep from freezing	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Ethylene chlorohydrin, 3, Flammable liquid, 6.1 Poison, UN1135
	5035A / 8260D (EPA SW-846) [Tier II]	**Solid**	5-g coring device or amber VOA vial AND 1 – 2 oz. glass jar (if needed to determine percent moisture)	Coring device (If coring device is to be cleaned and reused, samples can be transferred to an amber VOA vial.) AND glass jar (if needed to determine percent moisture)	14 days if frozen; 48 hours if not frozen	Cool to ≤ 6°C; freeze within 48 hours to ≤ negative (-) 7°C [Coring tools should not be frozen below -20°C.]	Wipe outside of coring device or container clean using a damp, then dry cloth. Place the coring device or container in a zipper bag. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Ethylene chlorohydrin, 3, Flammable liquid, 6.1 Poison, UN1135
	NA	**Wipes**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
Chloropicrin	**PV2103** (OSHA) [Tier I]	**Air**	5 L (flow rate = 0.2 L/min)	Solid sorbent tube (XAD-4 [100 mg/50 mg])	Until holding time data are available, analyze immediately/ as soon as possible	• Cool to ≤ 6°C • Protect from light	Wipe outside of sorbent tube clean using a damp, then dry cloth. Cap tubes with plastic (not rubber) caps. Place tubes in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Chloropicrin, 6.1, Poison, UN1580
	551.1 (EPA OW) [Tier I]	**Drinking Water** **Non-Drinking Water**	60 mL	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C; keep from freezing • Prior to collection of treated water samples, add 6 mg NH_4Cl to sample container	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Chloropicrin, 6.1, Poison, UN1580
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Solid**	40 mL	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Chloropicrin, 6.1, Poison, UN1580
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Chloropicrin, 6.1, Poison, UN1580

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
3-Chloro-1,2-propanediol	**TO-10A** (EPA ORD) [Tier III]	**Air**	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	7 days	Cool to ≤ 6°C	Remove PUF cartridge from sampler, wrap with aluminum foil used to store cartridge, and place in a sealed container. Place container in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Glycerol alpha-monochlorohydrin, 6.1, Toxic substance, UN2689
	J. Chromatogr. A (2000) 866: 65-77 [Tier II]	**Drinking Water** **Non-Drinking Water**	40 mL	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	15 days	• Adjust pH to 3 – 8 with sodium sulfite or 1:1 HCl • Cool to ≤°6; keep from freezing	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Glycerol alpha-monochlorohydrin, 6.1, Toxic substance, UN2689
	Eur. J. Lipid Sci. Technol. (2011) 113: 345-355 [Tier II]	**Solid**	250 mL	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Glycerol alpha-monochlorohydrin, 6.1, Toxic substance, UN2689
	Eur. J. Lipid Sci. Technol. (2011) 113: 345-355 [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Glycerol alpha-monochlorohydrin, 6.1, Toxic substance, UN2689
Chlorosarin	**TO-17** (EPA ORD) [Tier III]	**Air**	1 – 4 L (flow rate = 16 – 67 mL/min)	Stainless steel, 3.5-inch long tubes with a 6-cm sorbent bed and 1/4-inch o.d.	7 days	Cool to ≤ 6°C	Wrap tube in aluminum foil, and place in a clean sealed container. Place container in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-16/115 (EPA NHSRC) [Tier III]	**Drinking Water** **Non-Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	• Cool to ≤ 6°C; keep from freezing • Add sodium thiosulfate to remove residual chlorine from treated water samples(5)	Wipe outside of container clean using a damp, then dry cloth. Wrap container with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-16/115 (EPA NHSRC) [Tier III]	**Solid**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Wrap containers with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-16/115 (EPA NHSRC) [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Wrap containers with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Chlorosoman	**TO-17** (EPA ORD) [Tier III]	**Air**	1 – 4 L (flow rate = 16 – 67 mL/min)	Stainless steel, 3.5-inch long tubes with a 6-cm sorbent bed and 1/4-inch o.d.	7 days	Cool to ≤ 6°C	Wrap tube in aluminum foil, and place in a clean sealed container. Place container in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-16/115 (EPA NHSRC) [Tier III]	**Drinking Water** **Non-Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Wrap container with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-16/115 (EPA NHSRC) [Tier III]	**Solid**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Wrap containers with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-16/115 (EPA NHSRC) [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Wrap containers with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
2-Chlorovinyl arsonic acid (CVAOA) (degradation product of Lewisite)	**IO-3.1** **IO-3.4/IO-3.5** (EPA ORD) [Tier I]	**Air**	Up to 1700 m^3	Filter (quartz, silica, or cellulose fiber)	6 months	Cool to ≤ 6°C	Place filter in protective covering. Place protected filter in double plastic bags, and wrap with bubble wrap. Pack samples as described in Footnote (4).	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-15/258 (EPA NHSRC) [Tier II]	**Drinking Water** **Non-Drinking Water**	40 mL	VOA vial with fluoropolymer-lined cap	14 days	Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Wrap container with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-15/258 (EPA NHSRC) [Tier II]	**Solid**	40 mL	VOA vial with fluoropolymer-lined cap	Analyze immediately/ as soon as possible	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Wrap containers with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-15/258 (EPA NHSRC) [Tier II]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	VOA vial with fluoropolymer-lined cap	14 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Wrap containers with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
2-Chlorovinylarsonous acid (2-CVAA) (degradation product of Lewisite)	**IO-3.1** **IO-3.4/IO-3.5** (EPA ORD) [Tier I]	**Air**	Up to 1700 m^3	Filter (quartz, silica, or cellulose fiber)	6 months	Cool to ≤ 6°C	Place filter in protective covering. Place protected filter in double plastic bags, and wrap with bubble wrap. Pack samples as described in Footnote (4).	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-15/258 (EPA NHSRC) [Tier II]	**Drinking Water** **Non-Drinking Water**	40 mL	VOA vial with fluoropolymer-lined cap	14 days	Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Wrap container with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-15/258 (EPA NHSRC) [Tier II]	**Solid**	40 mL	VOA vial with fluoropolymer-lined cap	Analyze immediately/ as soon as possible	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Wrap containers with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-15/258 (EPA NHSRC) [Tier II]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	VOA vial with fluoropolymer-lined cap	14 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Wrap containers with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Chlorpyrifos	**TO-10A** (EPA ORD) [Tier I]	**Air**	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	7 days	Cool to ≤ 6°C	Remove PUF cartridge from sampler, wrap with aluminum foil used to store cartridge, and place in a sealed container. Place container in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Non-Drinking Water**	40 mL	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	For treated water samples: Preservatives/dechlorinating agents not required, but the analyte is not affected by the following, if added to address other analytes: • 1.6 – 2.0 mg NH_4Cl For all other samples: • Cool to ≤ 6°C; keep from freezing	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018
	525.2 / 525.3 (EPA OW) [Tier I]	**Drinking Water**	1 L	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	Method 525.2: • Add sodium sulfite to empty sample container to remove residual chlorine from treated water samples • Acidify to pH < 2 with 1:1 HCl[5] • Cool to ≤ 6°C; keep from freezing Method 525.3 (to empty sample container): • Add 4 mg ascorbic acid to remove residual chlorine from treated water samples • Add 14 mg trisodium EDTA, and 400 mg potassium dihydrogen citrate • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Solid**	40 mL	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Chlorpyrifos oxon	**TO-10A** (EPA ORD) [Tier III]	**Air**	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	7 days	Cool to ≤ 6°C	Remove PUF cartridge from sampler, wrap with aluminum foil used to store cartridge, and place in a sealed container. Place container in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
	540 (EPA OW) [Tier I]	**Drinking Water** **Non-Drinking Water**	250 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	• Prior to collection, add solid ascorbic acid (dechlorinating agent), Trizma® base (buffering agent) and chloroacetamide (antimicrobial preservative) at concentrations of 7.75 g/L, 2 g/L and 100 mg/L, respectively to an empty sample container • After collecting the sample, cap the container and agitate until preservative is dissolved • Cool samples to ≤10°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018
	EPA/600/R-16/114 (EPA NHSRC) [Tier III]	**Solid**	40 mL	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
	EPA/600/R-16/114 (EPA NHSRC) [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
Crimidine	NA	**Air**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Drinking Water** **Non-Drinking Water**	40 mL	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	<u>For treated water samples</u>: Preservatives/dechlorinating agents not required, but the analyte is not affected by the following, if added to address other analytes: • 2.0 mg NH4Cl • Cool to ≤ 6°C; keep from freezing	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Pesticide, n.o.s., liquid, 6.1, Poison, UN2902
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Solid**	40 mL	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Pesticide, n.o.s., solid, 6.1, Poison, UN2588
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Pesticide, n.o.s., solid, 6.1, Poison, UN2588

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Cyanide, Amenable to chlorination	NA	**Air**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	3135.2I (EPA Regional Lab) [Tier I]	**Drinking Water** **Non-Drinking Water**	1 L	Glass or polyethylene container	14 days	For treated water samples: • Add 0.6 g of ascorbic acid for each liter of sample volume For all samples: • Adjust to pH ≥ 12 with NaOH • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Cyanide solutions n.o.s, 6.1, Poison, UN1935
	3135.2I (EPA Regional Lab) [Tier I]	**Solid**	250 mL	Wide-mouth glass or polyethylene container	14 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Cyanide inorganic solid n.o.s, 6.1, Poison, UN1588
	3135.2I (EPA Regional Lab) [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth glass or polyethylene container	14 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Cyanide inorganic solid n.o.s, 6.1, Poison, UN1588
Cyanide, Total	**6010** (NIOSH) [Tier I]	**Air**	2 (at 5 ppm) – 90 L (flow rate = 0.05 – 0.2 L/min)	Solid sorbent tube (soda lime [600 mg/200 mg])	14 days	Cool to ≤ 6°C	Wipe outside of sorbent tube clean using a damp, then dry cloth. Cap tubes with plastic (not rubber) caps. Place tubes in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Cyanides, inorganic, solid, n.o.s, 6.1, Poison, UN1588
	ISM 02.3 CN (EPA CLP) [Tier I]	**Non-Drinking Water**	500 mL	Amber glass or polyethylene container	14 days	For treated water samples: '• Add 0.6 g of ascorbic acid for each liter of sample volume For all samples: • Adjust to pH ≥ 12 with NaOH • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Cyanide solutions n.o.s, 6.1, Poison, UN1935
	335.4 (EPA OW) [Tier I]	**Drinking Water**	125 mL	Amber glass or polyethylene container	14 days	• Add 0.6 g of ascorbic acid for each liter of sample volume • Adjust to pH ≥ 12 with NaOH • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Cyanide solutions n.o.s, 6.1, Poison, UN1935
	ISM 02.3 CN (EPA CLP) [Tier I]	**Solid**	40 mL	Wide-mouth amber glass or polyethylene container	14 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Cyanides, inorganic, solid, n.o.s, 6.1, Poison, UN1588
	ISM 02.3 CN (EPA CLP) [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth amber glass or polyethylene container	14 days	Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Cyanides, inorganic, solid, n.o.s, 6.1, Poison, UN1588

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Cyanogen chloride	**TO-15** (EPA ORD) [Tier III]	**Air**	1-L or 6-L canister (depending on suspected concentration)[6]	Specially prepared stainless steel canister For subatmospheric pressure sampling, the canister is evacuated to 0.05 mm Hg; for pressurized sampling, the sample is collected using a pump and flow control arrangement to achieve a typical 101 – 202 kPa (15 – 30 psig)	Analyze immediately/ as soon as possible	None	Ship canister in container provided by laboratory	Standard carrier shipping label AND Cyanogen chloride, 2.3, Poisonous gas, UN1589
	Encyclopedia of Anal. Chem. (2006) DOI: 10.1002/9780470027 318.a0809 [Tier II]	**Drinking Water** **Non-Drinking Water**	40 mL	Amber glass or fluoropolymer screw cap VOA vial with fluoropolymer-lined septum, filled with no headspace	14 days	• Add sodium thiosulfate to remove residual chlorine from treated wastewater samples[5] • Adjust to pH < 2 with 1:1 HCl • Cool to ≤ 6°C; keep from freezing	Wipe outside of container lean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Cyanogen chloride, 2.3, Poisonous gas, UN1589
	Encyclopedia of Anal. Chem. (2006) DOI: 10.1002/9780470027 318.a0809 [Tier II]	**Solid**	5-g coring device or amber VOA vial AND 1 – 2 oz. glass jar (if needed to determine percent moisture)	Coring device (If coring device is to be cleaned and reused, samples can be transferred to an amber VOA vial.) AND glass jar (if needed to determine percent moisture)	14 days if frozen; 48 hours if not frozen	Cool to ≤ 6°C; freeze within 48 hours to ≤ negative (-) 7°C [Coring tools should not be frozen below -20°C.]	Wipe outside of coring device or container clean using a damp, then dry cloth. Place the coring device or container in a zipper bag. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Cyanogen chloride, 2.3, Poisonous gas, UN1589
	NA	**Wipes**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
Cyclohexyl sarin (GF)	**TO-17** (EPA ORD) [Tier III]	**Air**	1 – 4 L (flow rate = 16 – 67 mL/min)	Stainless steel, 3.5-inch long tubes with a 6-cm sorbent bed and 1/4-inch O.D.	7 days	Cool to ≤ 6°C	Wrap tube in aluminum foil, and place in a clean sealed container. Place container in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-16/115 (EPA NHSRC) [Tier I]	**Drinking Water** **Non-Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	• Add sodium thiosulfate to remove residual chlorine from treated wastewater samples[5] • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Wrap containers with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-16/115 (EPA NHSRC) [Tier I]	**Solid**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Wrap containers with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-16/115 (EPA NHSRC) [Tier I]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Wrap containers with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
1,2-Dichloroethane (degradation product of HD)	**TO-15** (EPA ORD) [Tier I]	**Air**	1-L or 6-L canister (depending on suspected concentration)[6]	Specially prepared stainless steel canister For subatmospheric pressure sampling, the canister is evacuated to 0.05 mm Hg; for pressurized sampling, the sample is collected using a pump and flow control arrangement to achieve a typical 101 – 202 kPa (15 – 30 psig)	30 days	None	Ship canister in container provided by laboratory	Standard carrier shipping label AND Ethylene dichloride, 3, Flammable, 6.1, Poison, UN1184
	5030C / 8260D (EPA SW-846) [Tier I]	**Non-Drinking Water**	40 mL	Screw cap VOA vial with fluoropolymer-lined septum, filled with no headspace	14 days with acidification; 7 days if not acidified	• Add sodium thiosulfate to remove residual chlorine from treated water samples[5] • Adjust to pH < 2 with 1:1 HCl • Cool to ≤ 6°C; keep from freezing	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Ethylene dichloride, 3, Flammable, 6.1, Poison, UN1184
	524.2 / 524.3 / 524.4 (EPA OW) [Tier I]	**Drinking Water**	40 mL	Amber glass or fluoropolymer screw cap VOA vial with fluoropolymer-lined septum, filled with no headspace	14 days with acidification; 24 hours if not acidified	Prior to collection of treated water samples, add 25 mg ascorbic acid to container for removal of residual chlorine Method 524.2: • Adjust to pH < 2 with 1:1 HCl Methods 524.3 and 524.4: • Adjust to pH < 2 with maleic acid For all samples: • If residual chlorine is > 5 mg/L, add an additional 25 mg ascorbic acid per each 5 mg/L chlorine • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Ethylene dichloride, 3, Flammable, 6.1, Poison, UN1184
	5035A / 8260D (EPA SW-846) [Tier I]	**Solid**	5-g coring device or amber VOA vial AND 1 – 2 oz. glass jar (if needed to determine percent moisture)	Coring device (If coring device is to be cleaned and reused, samples can be transferred to an amber VOA vial.) AND glass jar (if needed to determine percent moisture)	14 days if frozen; 48 hours if not frozen	Cool to ≤ 6°C; freeze within 48 hours to ≤ negative (-) 7°C [Coring tools should not be frozen below -20°C.]	Wipe outside of coring device or container clean using a damp, then dry cloth. Place the coring device or container in a zipper bag. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Ethylene dichloride, 3, Flammable, 6.1, Poison, UN1184
	NA	**Wipes**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Dichlorvos	**TO-10A** (EPA ORD) [Tier I]	**Air**	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	7 days	Cool to ≤ 6°C	Remove PUF cartridge from sampler, wrap with aluminum foil used to store cartridge, and place in a sealed container. Place container in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
	3535A / 8270E (EPA SW-846) [Tier I]	**Non-Drinking Water**	1 L	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	• Add sodium thiosulfate to remove residual chlorine from treated water samples[5] • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018
	525.2 / 525.3 (EPA OW) [Tier I]	**Drinking Water**	1 L	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	Method 525.2: • Add sodium sulfite to empty sample container to remove residual chlorine from treated water samples • Acidify to pH < 2 with 1:1 HCl[5] • Cool to ≤ 6°C; keep from freezing Method 525.3 (to empty sample container): • Add 4 mg ascorbic acid to remove residual chlorine from treated water samples • Add 14 mg trisodium EDTA, and 400 mg potassium dihydrogen citrate • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Solid**	40 mL	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
Dicrotophos	**TO-10A** (EPA ORD) [Tier I]	**Air**	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	7 days	Cool to ≤ 6°C	Remove PUF cartridge from sampler, wrap with aluminum foil used to store cartridge, and place in a sealed container. Place container in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
	3535A / 8270E (EPA SW-846) [Tier I]	**Drinking Water** **Non-Drinking Water**	1 L	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	• Add sodium thiosulfate to remove residual chlorine from treated water samples[5] • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Solid**	40 mL	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Diesel Range Organics	NA	**Air**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	3520C / 3535A / 8015D (EPA SW-846) [Tier I]	**Drinking Water** **Non-Drinking Water**	1 L	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	• Add sodium thiosulfate to remove residual chlorine from treated water samples[5] • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Diesel fuel, 3, flammable, UN1203
	3541 / 3545A / 8015D (EPA SW-846) [Tier I]	**Solid**	250 mL	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Diesel fuel, 3, flammable, UN1203
	3570 / 8290A Appendix A / **8015D** (EPA SW-846) [Tier I]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Diesel fuel, 3, flammable, UN1203
Diisopropyl methyl-phosphonate (DIMP) (degradation product of GB)	**TO-10A** (EPA ORD) [Tier III]	**Air**	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	7 days	Cool to ≤ 6°C	Remove PUF cartridge from sampler, wrap with aluminum foil used to store cartridge, and place in a sealed container. Place container in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label
	D7597-16 (ASTM) [Tier II]	**Non-Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	24 hours	Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label
	538 (EPA OW) [Tier I]	**Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	• Prior to sample collection, add 400 µL of ammonium acetate concentrated stock and 80 µL of concentrated sodium omadine stock to sample container. [If volumes other than 40-mL are collected, the concentration of ammonium acetate and sodium omadine in the sample should be 1.5 g/L and 64 mg/L, respectively.] • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label
	E2866-12 (ASTM) [Tier II]	**Solid**	250 mL	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label
	EPA/600/R-13/224 (EPA NHSRC) [Tier II]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Dimethylphosphoramidic acid (degradation product of GA)	**TO-10A** (EPA ORD) [Tier III]	**Air**	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	7 days	Cool to ≤ 6°C	Remove PUF cartridge from sampler, wrap with aluminum foil used to store cartridge, and place in a sealed container. Place container in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus compound, toxic, solid, n.o.s, 6.1, Poison, UN3464
	D7597-16 (ASTM) [Tier III]	**Drinking Water** **Non-Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	24 hours	Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus compound, toxic, liquid, n.o.s, 6.1, Poison, UN3278
	E2866-12 (ASTM) [Tier III]	**Solid**	250 mL	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus compound, toxic, solid, n.o.s, 6.1, Poison, UN3464
	EPA/600/R-13/224 (EPA NHSRC) [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus compound, toxic, solid, n.o.s, 6.1, Poison, UN3464
Dimethylphosphite	**TO-10A** (EPA ORD) [Tier II]	**Air**	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	Analyze immediately/ as soon as possible	Cool to ≤ 6°C	Remove PUF cartridge from sampler, wrap with aluminum foil used to store cartridge, and place in a sealed container. Place container in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus compound, toxic, solid, n.o.s, 6.1, Poison, UN3464
	NA	**Non-Drinking Water**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	NA	**Drinking Water**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Solid**	40 mL	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	Analyze immediately/ as soon as possible	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus compound, toxic, solid, n.o.s, 6.1, Poison, UN3464
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus compound, toxic, solid, n.o.s, 6.1, Poison, UN3464

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Diphacinone	NA	**Air**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	D7644-16 (ASTM) [Tier II]	**Drinking Water** **Non-Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	• Prior to collection of treated water samples, add 10 mg of dry ascorbic acid to sample container for removal of residual chlorine • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film. Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Coumarin derivative pesticides, liquid, toxic, 6.1, Poison, UN3023
	3541 / 3545A (EPA SW-846) / **D7644-16** (ASTM) [Tier III]	**Solid**	250 mL	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Coumarin derivative pesticides, solid, toxic, 6.1, Poison, UN3026
	3570 / 8290A Appendix A (EPA SW-846) / **D7644-16** (ASTM) [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Coumarin derivative pesticides, solid, toxic, 6.1, Poison, UN3026
Disulfoton	**5600** (NIOSH) [Tier I]	**Air**	12 – 240 L (flow rate = 0.2 to 1 L/min)	Filter/solid sorbent tube (OVS-2 tube: 13 mm quartz filter, XAD-2, [270 mg/140 mg])	30 days if frozen; 10 days if not frozen	Cool to ≤ 6°C	Wipe outside of sorbent tube clean using a damp, then dry cloth. Cap both ends of the tube with plastic caps. Place tube in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
	525.2 / 525.3 (EPA OW) [Tier II]	**Drinking Water** **Non-Drinking Water**	1 L	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	Analyze immediately/ as soon as possible	Method 525.2: • Add sodium sulfite to empty sample container to remove residual chlorine from treated water samples • Acidify to pH < 2 with 1:1 HCl[5] • Cool to ≤ 6°C; keep from freezing Method 525.3 (to empty sample container): • Add 4 mg ascorbic acid to remove residual chlorine from treated water samples • Add 14 mg trisodium EDTA, and 400 mg potassium dihydrogen citrate • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Solid**	40 mL	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Disulfoton sulfone oxon	**5600** (NIOSH) [Tier III]	**Air**	12 – 240 L (flow rate = 0.2 to 1 L/min)	Filter/solid sorbent tube (OVS-2 tube: 13 mm quartz filter, XAD-2, [270 mg/140 mg])	30 days if frozen; 10 days if not frozen	Cool to ≤ 6°C	Wipe outside of sorbent tube clean using a damp, then dry cloth. Cap both ends of the tube with plastic caps. Place tube in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
	525.2 / 525.3 (EPA OW) [Tier III]	**Drinking Water** **Non-Drinking Water**	1 L	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	Analyze immediately/ as soon as possible	Method 525.2: • Add sodium sulfite to empty sample container to remove residual chlorine from treated water samples • Acidify to pH < 2 with 1:1 HCl[5] • Cool to ≤ 6°C; keep from freezing Method 525.3 (to empty sample container): • Add 4 mg ascorbic acid to remove residual chlorine from treated water samples • Add 14 mg trisodium EDTA, and 400 mg potassium dihydrogen citrate • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018
	EPA/600/R-16/114 (EPA NHSRC) [Tier III]	**Solid**	40 mL	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
	EPA/600/R-16/114 (EPA NHSRC) [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Disulfoton sulfoxide **Disulfoton sulfoxide oxon**	**5600** (NIOSH) [Tier III]	**Air**	12 – 240 L (flow rate = 0.2 to 1 L/min)	Filter/solid sorbent tube (OVS-2 tube: 13 mm quartz filter, XAD-2, [270 mg/140 mg])	30 days if frozen; 10 days if not frozen	Cool to ≤ 6°C	Wipe outside of sorbent tube clean using a damp, then dry cloth. Cap both ends of the tube with plastic caps. Place tube in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
	525.2 / 525.3 (EPA OW) [Tier II]	**Drinking Water** **Non-Drinking Water**	1 L	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	Analyze immediately/ as soon as possible	Method 525.2: • Add sodium sulfite to empty sample container to remove residual chlorine from treated water samples • Acidify to pH < 2 with 1:1 HCl[5] • Cool to ≤ 6°C; keep from freezing Method 525.3 (to empty sample container): • Add 4 mg ascorbic acid to remove residual chlorine from treated water samples • Add 14 mg trisodium EDTA, and 400 mg potassium dihydrogen citrate • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018
	EPA/600/R-16/114 (EPA NHSRC) [Tier III]	**Solid**	40 mL	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
	EPA/600/R-16/114 (EPA NHSRC) [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
1,4-Dithiane **(degradation product of HD)**	NA	**Air**	For the purposes of this document, this analyte is not considered to be a concern in this sample type.					
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Drinking Water** **Non-Drinking Water**	40 mL	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	• Cool to ≤ 6°C; keep from freezing For treated water samples: Preservatives/dechlorinating agents not required, but the analyte is not affected by the following, if added to address other analytes: • Sodium sulfite [5] • 1.6 - 2.0 mg NH_4Cl For all other samples: • Adjust pH < 2 with 1:1 HCl	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Solid**	40 mL	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
EA2192 [S-2-(diisopropylamino)ethyl methylphosphonothioic acid] (hydrolysis product of VX)	**TO-10A** (EPA ORD) [Tier III]	**Air**	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	Until holding time data are available, analyze immediately/ as soon as possible	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Wrap containers with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-15/097 (EPA NHSRC) [Tier II]	**Drinking Water** **Non-Drinking Water**	1 L	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	• Add sodium thiosulfate to remove residual chlorine from treated water samples[5] • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Wrap containers with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	3541 / 3545A (EPA SW-846) / **EPA/600/R-15/097** (EPA NHSRC) [Tier III]	**Solid**	250 mL	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	Until holding time data are available, analyze immediately/ as soon as possible	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Wrap containers with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	3570 / 8290A Appendix A (EPA SW-846) / **EPA/600/R-15/097** (EPA NHSRC) [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Wrap containers with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
Ethyl methylphosphonic acid (EMPA) (degradation product of VX)	**TO-10A** (EPA ORD) [Tier III]	**Air**	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	Until holding time data are available, analyze immediately/ as soon as possible	Cool to ≤ 6°C	Remove PUF cartridge from sampler, wrap with aluminum foil used to store cartridge, and place in a sealed container. Place container in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus compound, toxic, solid, n.o.s, 6.1, Poison, UN3464
	D7597-16 (ASTM) [Tier III - Drinking Water] [Tier II - Non-Drinking Water]	**Drinking Water** **Non-Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	24 hours	Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus compound, toxic, liquid, n.o.s, 6.1, Poison, UN3278
	E2866-12 (ASTM) [Tier II]	**Solid**	250 mL	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus compound, toxic, solid, n.o.s, 6.1, Poison, UN3464
	EPA/600/R-13/224 (EPA NHSRC) [Tier II]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus compound, toxic, solid, n.o.s, 6.1, Poison, UN3464

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Ethyldichloroarsine (ED)	**TO-15** (EPA ORD) [Tier III]	**Air**	1-L or 6-L canister (depending on suspected concentration)[6]	Specially prepared stainless steel canister For subatmospheric pressure sampling, the canister is evacuated to 0.05 mm Hg; for pressurized sampling, the sample is collected using a pump and flow control arrangement to achieve a typical 101 – 202 kPa (15 – 30 psig)	Analyze immediately/ as soon as possible	None	Ship canister in container provided by laboratory	Standard carrier shipping label AND Ethyldichloroarsine, 6.1, Poison, UN1892
	3535A / 8270E (EPA SW-846) [Tier III] .	**Drinking Water** **Non-Drinking Water**	1 L	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	Until holding time data are available, analyze immediately/ as soon as possible	• Add sodium thiosulfate to remove residual chlorine from treated water samples[5] • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Ethyldichloroarsine, 6.1, Poison, UN1892
	3541 / 3545A / 8270E (EPA SW-846) [Tier III]	**Solid**	250 mL	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	Until holding time data are available, analyze immediately/ as soon as possible	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Ethyldichloroarsine, 6.1, Poison, UN1892
	9102 (NIOSH) / **8270E** (EPA SW-846) [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Ethyldichloroarsine, 6.1, Poison, UN1892
Ethylene oxide	**TO-15** (EPA ORD) [Tier I]	**Air**	1-L or 6-L canister (depending on suspected concentration)[6]	Specially prepared stainless steel canister For subatmospheric pressure sampling, the canister is evacuated to 0.05 mm Hg; for pressurized sampling, the sample is collected using a pump and flow control arrangement to achieve a typical 101 – 202 kPa (15 – 30 psig)	30 days	None	Ship canister in container provided by laboratory	Standard carrier shipping label AND Ethylene oxide (concentration dependent, refer to 40 CFR 172.101 for more information)
	5030C / 8260D (EPA SW-846) [Tier II]	**Drinking Water** **Non-Drinking Water**	40 mL	Amber glass or fluoropolymer screw cap VOA vial with fluoropolymer-lined septum, filled with no headspace	14 days with acidification; 7 days if not acidified	• Add sodium thiosulfate to remove residual chlorine from treated water samples[5] • Adjust to pH < 2 with 1:1 HCl • Cool to ≤ 6°C; keep from freezing	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Ethylene oxide (concentration dependent, refer to 40 CFR 172.101 for more information)
	5035A / 8260D (EPA SW-846) [Tier II]	**Solid**	5-g coring device or amber VOA vial AND 1 – 2 oz. glass jar (if needed to determine percent moisture)	Coring device (If coring device is to be cleaned and reused, samples can be transferred to an amber VOA vial.) AND glass jar (if needed to determine percent moisture)	14 days if frozen; 48 hours if not frozen	Cool to ≤ 6°C; freeze within 48 hours to ≤ negative (-) 7°C [Coring tools should not be frozen below -20°C.]	Wipe outside of coring device or container clean using a damp, then dry cloth. Place the coring device or container in a zipper bag. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Ethylene oxide (concentration dependent, refer to 40 CFR 172.101 for more information)
	NA	**Wipes**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Fenamiphos	**TO-10A** (EPA ORD) [Tier II]	**Air**	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	7 days	Cool to ≤ 6°C	Remove PUF cartridge from sampler, wrap with aluminum foil used to store cartridge, and place in a sealed container. Place container in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Non-Drinking Water**	40 mL	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	Analyze immediately/ as soon as possible.	Cool to ≤ 6°C; keep from freezing	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018
	525.2 / 525.3 (EPA OW) [Tier I]	**Drinking Water**	1 L	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	Analyze immediately/ as soon as possible	Method 525.2: • Add sodium sulfite to empty sample container to remove residual chlorine from treated water samples • Acidify to pH < 2 with 1:1 HCl[5] • Cool to ≤ 6°C; keep from freezing Method 525.3 (to empty sample container): • Add 4 mg ascorbic acid to remove residual chlorine from treated water samples • Add 14 mg trisodium EDTA, and 400 mg potassium dihydrogen citrate • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Solid**	40 mL	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
Fentanyl	NA	**Air**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	3520C / 3535A (EPA SW-846) / **J. Chromatogr. A (2011) 1218**: 1620 - 1649 [Tier III]	**Drinking Water** **Non-Drinking Water**	1 L	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	• Add sodium thiosulfate to remove residual chlorine from treated water samples[5] • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label
	3541 / 3545A (EPA SW-846) / **J. Chromatogr. A (2011) 1218**: 1620 - 1649 [Tier III]	**Solid**	250 mL	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label
	3570 / 8290A Appendix A (EPA SW-846) **J. Chromatogr. A (2011) 1218**: 1620 - 1649 [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Fluoride	NA	**Air**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	300.1, Rev 1.0 (EPA OW) [Tier I]	**Drinking Water** **Non-Drinking Water**	40 mL	Fluoropolymer, plastic or glass container	28 days	Cool to ≤ 6°C; keep from freezing	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label
	NA	**Solid**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	NA	**Wipes**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
Fluoroacetamide	**J. Chromatogr. B (2008) 876(1):** 103-108 [Tier III]	**Air**	TBD	TBD	Until holding time data are available, analyze immediately/ as soon as possible	Cool to ≤6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Fluoroacetamide, 6.1, Poison, UN1687
	J. Chromatogr. B (2008) 876(1): 103-108 [Tier II]	**Drinking Water** **Non-Drinking Water**	40 mL	Screw-cap VOA vial with fluoropolymer-lined septum	Until holding time data are available, analyze immediately/ as soon as possible	Cool to ≤6°C; keep from freezing	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Fluoroacetamide, 6.1, Poison, UN1687
	J. Chromatogr. B (2008) 876(1): 103-108 [Tier II]	**Solid**	40 mL	Screw-cap VOA vial with fluoropolymer-lined septum	Until holding time data are available, analyze immediately/ as soon as possible	Cool to ≤6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Fluoroacetamide, 6.1, Poison, UN1687
	J. Chromatogr. B (2008) 876(1): 103-108 [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Screw-cap VOA vial with fluoropolymer-lined septum	Until holding time data are available, analyze immediately/ as soon as possible	Cool to ≤6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Fluoroacetamide, 6.1, Poison, UN1687
Fluoroacetic acid and fluoroacetate salts (analyze as fluoroacetate ion)	**S301-1** (NIOSH) **J. Chromatogr. A (2007) 1139:** 271-278 [Tier III]	**Air**	Up to 480 L (at 1.5 – 2.0 L/min)	Cellulose ester membrane filter / cleaned and rinsed glass or plastic bottles	Until holding time data are available, analyze immediately/ as soon as possible	Cool to ≤ 6°C	Place filter in protective covering. Place protected filter in double plastic bags, and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Fluoroacetic acid, 6.1, Poison, UN2642
	J. Chromatogr. B (2010) 878: 1045-1050 [Tier III]	**Drinking Water** **Non-Drinking Water**	40 mL	Screw-cap VOA vial with fluoropolymer-lined septum	Until holding time data are available, analyze immediately/ as soon as possible	Cool to ≤6°C; keep from freezing	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Fluoroacetic acid, 6.1, Poison, UN2642
	J. Chromatogr. A (2007) 1139: 271-278 [Tier III]	**Solid**	250 mL	Wide-mouth glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Fluoroacetic acid, 6.1, Poison, UN2642
	J. Chromatogr. A (2007) 1139: 271-278 [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Fluoroacetic acid, 6.1, Poison, UN2642

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
2-Fluoroethanol	**2513** (NIOSH) [Tier III]	**Air**	2 (at 5 ppm) – 35 L (flow rate = 0.01 – 0.2 L/min)	Solid sorbent tube (petroleum charcoal [100 mg/50 mg])	14 days	Cool to ≤ 6°C	Wipe outside of sorbent tube clean using a damp, then dry cloth. Cap tubes with plastic (not rubber) caps. Place tubes in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label
	5030C / 8260D (SW-846) [Tier III]	**Drinking Water** **Non-Drinking Water**	40 mL	Amber glass or fluoropolymer screw cap VOA vial with fluoropolymer-lined septum, filled with no headspace	14 days with acidification; 7 days if not acidified	• Add sodium thiosulfate to remove residual chlorine from treated water samples[5] • Adjust to pH < 2 with 1:1 HCl • Cool to ≤ 6°C; keep from freezing	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film, and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label
	5035A / 8260D (EPA SW-846) [Tier III]	**Solid**	5-g coring device or amber VOA vial AND 1 – 2 oz. glass jar (if needed to determine percent moisture)	Coring device (If coring device is to be cleaned and reused, samples can be transferred to an amber VOA vial.) AND glass jar (if needed to determine percent moisture)	14 days if frozen; 48 hours if not frozen	Cool to ≤ 6°C; freeze within 48 hours to ≤ negative (-) 7°C [Coring tools should not be frozen below -20°C.]	Wipe outside of coring device or container clean using a damp, then dry cloth. Place the coring device or container in a zipper bag. Pack samples as described in Footnote (4).	Standard carrier shipping label
	NA	**Wipes**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
Fluorosilicic acid (analyze as fluoride)	NA	**Air**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	300.1, Rev 1.0 (EPA OW) [Tier I]	**Drinking Water** **Non-Drinking Water**	40 mL	Screw-cap VOA vial with fluoropolymer-lined septum	28 days	Cool to ≤ 6°C; keep from freezing	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label
	NA	**Solid**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	NA	**Wipes**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Formaldehyde	**2016** (NIOSH) [Tier I]	**Air**	1 L (at 0.25 mg/m^3) – 15 L (at 2.5 mg/m^3) (flow rate = 0.03 – 1.5 L/min)	Dinitrophenylhydrazine (DNPH)-coated silica gel cartridge	30 days	Cool to ≤ 6°C	Place end caps onto the cartridge and seal sampler in an envelope. Place cartridge in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Formaldehyde (concentration dependent, refer to 40 CFR 172.101 for more information)
	8315A (EPA SW-846) [Tier I]	**Non-Drinking Water**	100 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	3 days	• Preserve to pH 5.0 with 1:1 HCl or NaOH • Cool to ≤ 6°C; keep from freezing • Add 10 mg NH_4Cl to remove residual chlorine from treated water samples	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Formaldehyde (concentration dependent, refer to 40 CFR 172.101 for more information).
	556.1 (EPA OW) [Tier I]	**Drinking Water**	30 mL	Amber glass or fluoropolymer container with polypropylene screw cap equipped with fluoropolymer-lined septum	7 days	• Prior to collecting treated water samples, add 15 mg copper sulfate pentahydrate and 15 mg NH_4Cl to sample container • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Formaldehyde (concentration dependent, refer to 40 CFR 172.101 for more information)
	8315A (EPA SW-846) [Tier I]	**Solid**	250 mL	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	3 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Formaldehyde (concentration dependent, refer to 40 CFR 172.101 for more information)
	3570 / 8290A Appendix A / **8315A** (EPA SW-846) [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	3 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Formaldehyde (concentration dependent, refer to 40 CFR 172.101 for more information)
Gasoline Range Organics	NA	**Air**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	5030C / 8015D (EPA SW-846) [Tier I]	**Drinking Water** **Non-Drinking Water**	40 mL	Amber glass or fluoropolymer screw cap VOA vial with fluoropolymer-lined septum, filled with no headspace	14 days with acidification; 7 days if not acidified	• Add sodium thiosulfate to remove residual chlorine from treated water samples[5] • Adjust to pH < 2 with 1:1 HCl • Cool to ≤ 6°C; keep from freezing	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier AND Gasoline identification set, 2.3, Poison gas, NA9035 shipping label
	5035A / 8015C (EPA SW-846) [Tier I]	**Solid**	5-g coring device or amber VOA vial AND 1 – 2 oz. glass jar (if needed to determine percent moisture)	Coring device (If coring device is to be cleaned and reused, samples can be transferred to an amber VOA vial.) AND glass jar (if needed to determine percent moisture)	14 days if frozen; 48 hours if not frozen	Cool to ≤ 6°C; freeze within 48 hours to ≤ negative (-) 7°C [Coring tools should not be frozen below -20°C.]	Wipe outside of coring device or container clean using a damp, then dry cloth. Place the coring device or container in a zipper bag. Pack samples as described in Footnote (4).	Standard carrier AND Gasoline identification set, 2.3, Poison gas, NA9035
	3570 / 8290A Appendix A / **8015D** (EPA SW-846) [Tier I]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier AND Gasoline identification set, 2.3, Poison gas, NA9035

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	NA	**Air**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	3535A / 8330B (EPA SW-846) [Tier I]	**Drinking Water** **Non-Drinking Water**	1 L	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	• Add sodium thiosulfate to remove residual chlorine from treated water samples[5] • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND RDX, 1.1, Explosive, UN0483[8]
	8330B (EPA SW-846) [Tier I]	**Solid**	250 mL	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND RDX, 1.1, Explosive, UN0483[8]
	3570 / 8290A Appendix A / **8330B** (EPA SW-846) [Tier I]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND RDX, 1.1, Explosive, UN0483[8]
Hexamethylene triperoxidediamine (HMTD)	NA	**Air**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	3535A / 8330B (EPA SW-846) / **Analyst (2001) 126**:1689-1693 [Tier II]	**Drinking Water** **Non-Drinking Water**	1 L	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	• Add sodium thiosulfate to remove residual chlorine from treated water samples[5] • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND HMTD, 1.1, Explosive[8]
	8330B (EPA SW-846) / **Analyst (2001) 126**:1689-1693 [Tier II]	**Solid**	250 mL	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND HMTD, 1.1, Explosive[8]
	3570 / 8290A Appendix A (EPA SW-846) / **Analyst (2001) 126**:1689-1693 [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND HMTD, 1.1 , Explosive[8]
Hydrogen bromide	**7907** (NIOSH) [Tier I]	**Air**	30 – 600 L (flow rate = 2 L/min)	Two filters in series separated with chemically inert spacer: • pre-filter: 37-mm diameter quartz fiber • sampling filter: 37-mm diameter quartz fiber impregnated with 1 M 500-µL Na_2CO_3	28 days	Cool to ≤ 6°C	Wipe outside of filter clean using a damp, then dry cloth. Place filter in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Hydrogen bromide, 2.3, Poisonous gas, UN1048
	NA	**Non-Drinking Water**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	NA	**Drinking Water**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	NA	**Solid**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	NA	**Wipes**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Hydrogen chloride	**7907** (NIOSH) [Tier I]	**Air**	30 – 600 L (flow rate = 2 L/min)	Two filters in series separated with chemically inert spacer: • pre-filter: 37-mm diameter quartz fiber • sampling filter: 37-mm diameter quartz fiber impregnated with 1 M 500-µL Na_2CO_3	28 days	Cool to ≤ 6°C	Wipe outside of filter clean using a damp, then dry cloth. Place filter in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Hydrogen chloride, 2.3, Poisonous gas, UN1050
	NA	**Non-Drinking Water**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	NA	**Drinking Water**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	NA	**Solid**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	NA	**Wipes**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
Hydrogen cyanide	**6010** (NIOSH) [Tier I]	**Air**	2 (at 5 ppm) – 90 L (flow rate = 0.05 – 0.2 L/min)	Solid sorbent tube (soda lime [600 mg/200 mg])	14 days	Cool to ≤ 6°C	Wipe outside of sorbent tube clean using a damp, then dry cloth. Cap tubes with plastic (not rubber) caps. Place tubes in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Hydrogen cyanide, 2.3, Poisonous gas, UN1956
	NA	**Non-Drinking Water**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	NA	**Drinking Water**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	NA	**Solid**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	NA	**Wipes**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
Hydrogen fluoride	**7906** (NIOSH) [Tier I]	**Air**	30 – 600 L (flow rate = 2 L/min)	Two filters in series separated by a chemically inert spacer: • pre-filter: cellulose nitrate, 0.8 µm pore size, 37-mm diameter • treated filter: cellulose nitrate impregnated with 0.75 M Na_2CO_3, 0.8 µm pore size, 37-mm diameter	28 days	Cool to ≤ 6°C	Wipe outside of filter clean using a damp, then dry cloth. Place filter in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Hydrogen fluoride, 2.3, Poisonous gas, Corrosive, UN1052
	NA	**Non-Drinking Water**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	NA	**Drinking Water**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	NA	**Solid**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	NA	**Wipes**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
Hydrogen sulfide	**6013** (NIOSH) [Tier I]	**Air**	1.2 (at 10 ppm) – 40 L (flow rate = 0.1 – 1.5 L/min; 0.2 L/min is recommended)	Filter/solid sorbent tube (0.5 µm/coconut shell charcoal [400 mg/200 mg])	21 days	Cool to ≤ 6°C	Wipe filter and sorbent tube clean, using a damp, then dry cloth. Place filter and sorbent tube in double plastic bags, and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Hydrogen sulfide, 2.3, Poisonous gas, Corrosive, UN1053
	NA	**Non-Drinking Water**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	NA	**Drinking Water**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	NA	**Solid**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	NA	**Wipes**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Isopropyl methylphosphonic acid (IMPA) (degradation product of GB)	**TO-10A** (EPA ORD) [Tier III]	**Air**	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	7 days	Cool to ≤ 6°C	Remove PUF cartridge from sampler, wrap with aluminum foil used to store cartridge, and place in a sealed container. Place container in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus compound, toxic, solid, n.o.s, 6.1, Poison, UN3464
	D7597-16 (ASTM) [Tier III - Drinking Water] [Tier II - Non-Drinking Water]	**Drinking Water** **Non-Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	24 hours	Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus compound, toxic, liquid, n.o.s, 6.1, Poison, UN3278
	E2866-12 (ASTM) [Tier II]	**Solid**	250 mL	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus compound, toxic, solid, n.o.s, 6.1, Poison, UN3464
	EPA/600/R-13/224 (EPA NHSRC) [Tier II]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus compound, toxic, solid, n.o.s, 6.1, Poison, UN3464
Kerosene	NA	**Air**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	3520C / 3535A / 8015D (EPA SW-846) [Tier I]	**Drinking Water** **Non-Drinking Water**	1 L	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	• Add sodium thiosulfate to remove residual chlorine from treated water samples[5] • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Kerosene, 3, Flammable, UN1223
	3541 / 3545A / 8015D (EPA SW-846) [Tier I]	**Solid**	250 mL	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Kerosene, 3, Flammable, UN1223
	3570 / 8290A Appendix A / **8015D** (EPA SW-846) [Tier I]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Kerosene, 3, Flammable, UN1223

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Lead arsenate (analyze as total arsenic)	**IO-3.1 / IO-3.4 / IO-3.5** (EPA ORD) [Tier I]	**Air**	Up to 1700 m^3	Filter (quartz, silica, or cellulose fiber)	6 months	Cool to ≤ 6°C	Place filter in protective covering. Place protected filter in double plastic bags, and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Lead arsenate, 6.1, Poison, UN1617
	3015A / 6010D / 6020B (EPA SW-846) [Tier I]	**Non-Drinking Water**	125 mL	Fluoropolymer, plastic or glass container	6 months with acidification. Samples must be acidified within 14 days of collection.	• Acidify to pH < 2 with HNO_3[7] [If arsenic species are to be determined, remove unpreserved aliquot prior to sample preservation.] • Acidified samples can be cooled to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Lead arsenate, 6.1, Poison, UN1617
	200.7 / 200.8 (EPA OW) [Tier I]	**Drinking Water**	125 mL	Fluoropolymer, plastic or glass container	6 months with acidification. Samples must be acidified within 14 days of collection.	• Acidify to pH < 2 with HNO_3[7] [If arsenic species are to be determined, remove unpreserved aliquot prior to sample preservation.] • Acidified samples can be cooled to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Lead arsenate, 6.1, Poison, UN1617
	3050B / 3051A / 6010D / 6020B (EPA SW-846) [Tier I]	**Solid**	250 mL	Wide-mouth fluoropolymer, plastic or glass container	Analyze immediately/ as soon as possible	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Lead arsenate, 6.1, Poison, UN1617
	9102 (NIOSH) **6010D / 6020B** (EPA SW-846) [Tier I]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth fluoropolymer, plastic or glass container	Analyze immediately/ as soon as possible	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Lead arsenate, 6.1, Poison, UN1617
Lewisite 1 (L-1) Lewisite 2 (L-2) Lewisite 3 (L-3)	**IO-3.1 IO-3.4/IO-3.5** (EPA ORD) [Tier I]	**Air**	Up to 1700 m^3	Filter (quartz, silica, or cellulose fiber)	6 months	Cool to ≤ 6°C	Place filter in protective covering. Place protected filter in double plastic bags, and wrap with bubble wrap. Pack samples as described in Footnote (4).	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-15/258 (EPA NHSRC) [Tier II - Lewisite I] [Tier III - Lewisites II and III]	**Drinking Water** **Non-Drinking Water**	40 mL	VOA vial with fluoropolymer-lined cap	14 days	Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Wrap container with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-15/258 (EPA NHSRC) [Tier II - Lewisite I] [Tier III - Lewisites II and III]	**Solid**	40 mL	VOA vial with fluoropolymer-lined cap	Analyze immediately/ as soon as possible	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Wrap containers with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-15/258 (EPA NHSRC) [Tier II - Lewisite I] [Tier III - Lewisites II and III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	VOA vial with fluoropolymer-lined cap	14 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Wrap containers with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Lewisite oxide (degradation product of Lewisite) (analyze as total arsenic)	**IO-3.1 / IO-3.4 / IO-3.5** (EPA ORD) [Tier I]	**Air**	Up to 1700 m^3	Filter (quartz, silica, or cellulose fiber)	6 months	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-15/258 (EPA NHSRC) [Tier III]	**Drinking Water** **Non-Drinking Water**	40 mL	Screw-cap VOA vial with fluoropolymer-lined septum	14 days	• Acidify to pH < 2 with HNO_3 • Cool to ≤ 6°C; keep from freezing	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-15/258 (EPA NHSRC) [Tier III]	**Solid**	40 mL	Screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-15/258 (EPA NHSRC) [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
Mercuric chloride (analyze as total mercury)	NA	**Air**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	245.1 (EPA OW) [Tier I]	**Drinking Water** **Non-Drinking Water**	125 mL	Fluoropolymer, plastic or glass container	28 days	Acidify to pH < 2 with HNO_3[7]	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Mercuric chloride, 6.1, Poison, UN1624
	7473 / 7471B (EPA SW-846) [Tier I]	**Solid**	250 mL	Wide-mouth fluoropolymer, plastic or glass container	28 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Mercuric chloride, 6.1, Poison, UN1624
	9102 (NIOSH) / **7473 / 7471B** (EPA SW-846) [Tier I]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth fluoropolymer, plastic or glass container	28 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Mercuric chloride, 6.1, Poison, UN1624

Analyte	Selected Analytical Methods –SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Mercury, Total	**IO-5** (EPA ORD) [Tier I]	**Air**	Typical flow rate is 30 L/min for 12 – 24 hours	Trap apparatus: • Vapor phase: Sampling pumps specially designed for trace-level pollutant sampling; vapor phase Hg collected using two gold traps in series, attached to a fluoropolymer filter pack • Particle phase: Glass fiber filter	7 days [Particle-phase Hg filters can be stored indefinitely at negative (-) 40°C.]	Cool to ≤ 6°C	Wipe the outside of apparatus clean, cap both ends. Place in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Mercury, 8, Corrosive, UN2809
	245.1 (EPA OW) [Tier I]	**Drinking Water** **Non-Drinking Water**	125 mL	Fluoropolymer, plastic or glass container	28 days	Acidify to pH < 2 with HNO_3[7] [If dissolved mercury is to be determined, filter the sample prior to acidification.]	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Mercury, 8, Corrosive, UN2809
	7473 / 7471B (EPA SW-846) [Tier I]	**Solid**	250 mL	Wide-mouth fluoropolymer, plastic or glass container	28 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Mercury, 8, Corrosive, UN2809
	9102 (NIOSH) / **7473 / 7471B** (EPA SW-846) [Tier I]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth fluoropolymer, plastic or glass container	28 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Mercury, 8, Corrosive, UN2809

Analyte	Selected Analytical Methods –SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Methamidophos	**J. Chromatogr. A (2007) 1154(1):** 3-25 [Tier III]	**Air**	TBD	TBD	Until holding time data are available, analyze immediately/ as soon as possible	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film. Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
	Chromatographia (2006) 63(5/6): 223-237 [Tier II]	**Non-Drinking Water**	1 L	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018
	538 (EPA OW) [Tier I]	**Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	• Prior to collection, add 400 µL of ammonium acetate concentrated stock and 80 µL of concentrated sodium omadine stock to sample container. [If volumes other than 40-mL are collected, the concentration of ammonium acetate and sodium omadine in the sample should be 1.5 g/L and 64 mg/L, respectively.] • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018
	J. Chromatogr. A (2007) 1154(1): 3-25 [Tier II]	**Solid**	250 mL	Fluoropolymer centrifuge tube	Until holding time data are available, analyze immediately/ as soon as possible	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
	J. Chromatogr. A (2007) 1154(1): 3-25 [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth glass or fluoropolymer container with fluoropolymer-lined lid	Until holding time data are available, analyze immediately/ as soon as possible	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Methomyl	**5601** (NIOSH) [Tier I]	**Air**	12 – 480 L (flow rate = 0.1 – 1 L/min)	Filter/solid sorbent tube: • 13- mm quartz fiber filter • OVS-2 tube (XAD-2 resin [270mg/140 mg])	30 days if frozen; 7 days at room temperature (24°C)	Cool to ≤ 6°C	Wipe outside of sorbent tube clean using a damp, then dry cloth. Cap both ends of the tube with plastic caps. Place tube in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbamate pesticides, solid, toxic, 6.1, UN2757
	D7645-16 (ASTM) [Tier II]	**Non-Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	• Acidify to pH ≤ 3.8 with glacial acetic acid • Cool to ≤ 6°C; keep from freezing • Prior to collection of treated water samples, add 10 mg ascorbic acid to sample container	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbamate pesticides, liquid, toxic, 6.1, Poison, UN2992
	531.2 (EPA OW) [Tier I]	**Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	28 days	• Prior to collection, add 0.4 g potassium dihydrogen citrate and 3.2 – 4.8 mg sodium thiosulfate to sample container • Agitate for 1 minute after collection • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbamate pesticides, liquid, toxic, 6.1, Poison, UN2992
	8318A (EPA SW-846) [Tier II]	**Solid**	250 mL	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbamate pesticides, solid, toxic, 6.1, UN2757
	3570 / 8290A Appendix A / **8318A** (EPA SW-846) [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbamate pesticides, solid, toxic, 6.1, UN2757
Methoxyethylmercuric acetate (analyze as total mercury)	**IO-5** (EPA ORD) [Tier I]	**Air**	Typical flow rate of 30 L/min for 12 – 24 hours	Trap apparatus: • Vapor phase: Sampling pumps specially designed for trace-level pollutant sampling; vapor phase Hg collected using two gold traps in series, attached to a fluoropolymer filter pack • Particle phase: Glass fiber filter	7 days [Particle-phase Hg filters can be stored indefinitely at negative (-) 40°C.]	Cool to ≤ 6°C	Wipe the outside of trap apparatus clean, cap both ends. Place in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Mercury compounds, solid, n.o.s, 6.1, Poison, UN2025
	245.1 (EPA OW) [Tier I]	**Drinking Water** **Non-Drinking Water**	125 mL	Fluoropolymer, plastic or glass container	28 days	Acidify to pH < 2 with HNO_3[7]	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Mercury compounds, liquid, n.o.s, 6.1, Poison, UN2024
	7473 / 7471B (EPA SW-846) [Tier I]	**Solid**	250 mL	Wide-mouth fluoropolymer, plastic or glass container	28 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Mercury compounds, solid, n.o.s, 6.1, Poison, UN2025
	9102 (NIOSH) / **7473 / 7471B** (EPA SW-846) [Tier I]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth fluoropolymer, plastic or glass container	28 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Mercury compounds, solid, n.o.s, 6.1, Poison, UN2025

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Methyl acrylonitrile	**PV2004** (OSHA) [Tier III]	**Air**	120 L (flow rate = 1 L/min)	Filter/solid sorbent tube (13-mm quartz fiber filter) • OVS-7 tube (XAD-7 resin) • OVS-2 (XAD-2 resin) • OVS-SG (silica gel)	13 days	Cool to ≤ 6°C	Wipe outside of sorbent tube clean using a damp, then dry cloth. Cap both ends of the tube with plastic caps. Place tube in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Methyl acrylonitrile, 3.0, Flammable Liquid, 6.1, Poison, UN3079
	524.2 / 524.3 / 524.4 (EPA OW) [Tier II]	**Drinking Water** **Non-Drinking Water**	40 mL	Amber glass or fluoropolymer screw cap VOA vial with fluoropolymer-lined septum, filled with no headspace	14 days with acidification; 24 hours if not acidified	Prior to collection of treated water samples, add 25 mg ascorbic acid to container for removal of residual chlorine Method 524.2: • Adjust to pH < 2 with 1:1 HCl Methods 524.3 and 524.4: • Adjust to pH < 2 with maleic acid For all samples: • If residual chlorine is > 5 mg/L, add an additional 25 mg ascorbic acid per each 5 mg/L chlorine • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Methyl acrylonitrile, 3.0, Flammable Liquid, 6.1, Poison, UN3079
	5035A / 8260D (EPA SW-846) [Tier II]	**Solid**	5-g coring device or amber VOA vial AND 1 – 2 oz. glass jar (if needed to determine percent moisture)	Coring device (If coring device is to be cleaned and reused, samples can be transferred to an amber VOA vial.) AND glass jar (if needed to determine percent moisture)	14 days if frozen; 48 hours if not frozen	Cool to ≤ 6°C; freeze within 48 hours to ≤ negative (-) 7°C. [Coring tools should not be frozen below -20°C.]	Wipe outside of coring device or container clean using a damp, then dry cloth. Place the coring device or container in a zipper bag. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Methyl acrylonitrile, 3.0, Flammable Liquid, 6.1, Poison, UN3079
	3570 / 8290A Appendix A / **8260D** (EPA SW-846) [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Screw-cap VOA vial with fluoropolymer-lined septum or lid	14 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Methyl acrylonitrile, 3.0, Flammable Liquid, 6.1, Poison, UN3079
3-Methyl fentanyl	NA	**Air**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	3520C / 3535A (EPA SW-846) / **J. Chromatogr. B (2014) 962**: 52-58 [Tier III]	**Drinking Water** **Non-Drinking Water**	1 L	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	• Add sodium thiosulfate to remove residual chlorine from treated water samples[5] • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organic, n.o.s., liquid, 6.1, Poison, UN2810
	3541 / 3545A (EPA SW-846) / **J. Chromatogr. B (2014) 962**: 52-58 [Tier III]	**Solid**	250 mL	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organic, n.o.s., solid, 6.1, Poison, UN2811
	3570 / 8290A (EPA SW-846) / **J. Chromatogr. B (2014) 962**: 52-58 [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organic, n.o.s., solid, 6.1, Poison, UN2811

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Methyl fluoroacetate (analyze as fluoroacetate ion)	**S301-1** (NIOSH) **J. Chromatogr. A (2007) 1139**: 271-278 [Tier III]	**Air**	Up to 480 L (flow rate = 1.5 – 2.0 L/min)	Cellulose ester membrane filter/cleaned and rinsed glass or plastic bottles	Until holding time data are available, analyze immediately/ as soon as possible	Cool to ≤ 6°C	Place filter in protective covering. Place protected filter in double plastic bags, and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Fluoroacetic acid, 6.1, Poison, UN2642
	J. Chromatogr. B (2010) 878: 1045-1050 [Tier III]	**Drinking Water** **Non-Drinking Water**	40 mL	Screw-cap VOA vial with fluoropolymer-lined septum	Until holding time data are available, analyze immediately/ as soon as possible	Cool to ≤6°C; keep from freezing	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Fluoroacetic acid, 6.1, Poison, UN2642
	J. Chromatogr. A (2007) 1139: 271-278 [Tier III]	**Solid**	250 mL	Wide-mouth glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Fluoroacetic acid, 6.1, Poison, UN2642
	J. Chromatogr. A (2007) 1139: 271-278 [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Fluoroacetic acid, 6.1, Poison, UN2642
Methyl hydrazine	**3510** (NIOSH) [Tier I]	**Air**	3 (at 0.2 ppm) – 20 L (flow rate = 0.5 to 1.5 L/min)	Bubbler (0.1 M HCl). Seal and transfer the bubbler to container for shipping.	5 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Methyl hydrazine, 6.1, Poison, UN1244
	J. Chromatogr. (1993) 617: 157-162 [Tier II]	**Drinking Water** **Non-Drinking Water**	1 L	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	• Add sodium thiosulfate to remove residual chlorine from treated water samples[5] • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Methyl hydrazine, 6.1, Poison, UN1244
	3541 / 3545A (EPA SW-846) **J. Chromatogr. (1993) 617:** 157-162 [Tier III]	**Solid**	250 mL	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Methyl hydrazine, 6.1, Poison, UN1244
	3570 / 8290A Appendix A (EPA SW-846) / **J. Chromatogr. (1993) 617:** 157-162 [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Methyl hydrazine, 6.1, Poison, UN1244
Methyl isocyanate	**OSHA 54** [Tier I]	**Air**	15 L (flow rate = 0.05 L/min)	Solid sorbent tube (XAD-7 tubes coated with 0.03 mg of 1-(2-pyridyl)piperazine	18 days	• Cool to ≤ 6°C • Protect from light	Wipe outside of tube clean using a damp, then dry cloth. Cap ends of tube, wrap tube with OSHA seal, and place in container. Seal the container with non-reactive tape or film. Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Methyl isocyanate, 6.1, Poison, UN2480
	NA	**Non-Drinking Water**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	NA	**Drinking Water**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	NA	**Solid**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	NA	**Wipes**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					

Analyte	Selected Analytical Methods –SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Methyl paraoxon	**TO-10A** (EPA ORD) [Tier III]	**Air**	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	7 days	Cool to ≤ 6°C	Remove PUF cartridge from sampler, wrap with aluminum foil used to store cartridge, and place in a sealed container. Place container in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
	3535A / 8270E (EPA SW-846) [Tier III] .	**Drinking Water** **Non-Drinking Water**	1 L	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	• Add sodium thiosulfate to remove residual chlorine from treated water samples[5] • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018
	EPA/600/R-16/114 (EPA NHSRC) [Tier III]	**Solid**	40 mL	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
	EPA/600/R-16/114 (EPA NHSRC) [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
Methyl parathion	**TO-10A** (EPA ORD) [Tier I]	**Air**	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	7 days	Cool to ≤ 6°C	Remove PUF cartridge from sampler, wrap with aluminum foil used to store cartridge, and place in a sealed container. Place container in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
	3535A / 8270E (EPA SW-846) [Tier I]	**Drinking Water** **Non-Drinking Water**	1 L	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	• Add sodium thiosulfate to treated water samples[5] • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Solid**	40 mL	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
Methylamine	**OSHA 40** [Tier I]	**Air**	10 L (flow rate = 0.2 L/min)	Solid sorbent tubes containing XAD-7 resin coated with 10% NBD chloride (7-chloro-4-nitrobenzo-2-oxa-1,3-diazole) by weight	15 days	Cool to ≤ 6°C	Wipe outside of tube clean using a damp, then dry cloth. Cap ends of tube, wrap tube with OSHA seal, and place in container. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND, Methylamine, anhydrous, 2.1, Flammable gas, UN1061
	NA	**Non-Drinking Water**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	NA	**Drinking Water**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	NA	**Solid**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	NA	**Wipes**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Methylphosphonic acid (MPA) (degradation product of VX, GB, & GD)	**TO-10A** (EPA ORD) [Tier III]	**Air**	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	7 days	Cool to ≤ 6°C	Remove PUF cartridge from sampler, wrap with aluminum foil used to store cartridge, and place in a sealed container. Place container in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus compound, toxic, solid, n.o.s, 6.1, Poison, UN3464
	D7597-16 (ASTM) [Tier III - Drinking Water] [Tier II - Non-Drinking Water]	**Drinking Water** **Non-Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	24 hours	Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus compound, toxic, liquid, n.o.s, 6.1, Poison, UN3278
	E2866-12 (ASTM) [Tier II]	**Solid**	250 mL	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus compound, toxic, solid, n.o.s, 6.1, Poison, UN3464
	EPA/600/R-13/224 (EPA NHSRC) [Tier II]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus compound, toxic, solid, n.o.s, 6.1, Poison, UN3464

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Mevinphos	**TO-10A** (EPA ORD) [Tier II]	**Air**	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	7 days	Cool to ≤ 6°C	Remove PUF cartridge from sampler, wrap with aluminum foil used to store cartridge, and place in a sealed container. Place container in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
	3535A / 8270E (EPA SW-846) [Tier I]	**Non-Drinking Water**	1 L	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	• Add sodium thiosulfate to remove residual chlorine from treated water samples[5] • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018
	525.2 / 525.3 (EPA OW) [Tier I]	**Drinking Water**	1 L	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	Analyze immediately/ as soon as possible	Method 525.2: • Add sodium sulfite to empty sample container to remove residual chlorine from treated water samples • Acidify to pH < 2 with 1:1 HCl[5] • Cool to ≤ 6°C; keep from freezing Method 525.3 (to empty sample container): • Add 4 mg ascorbic acid to remove residual chlorine from treated water samples • Add 14 mg trisodium EDTA, and 400 mg potassium dihydrogen citrate • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Solid**	40 mL	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Monocrotophos	**TO-10A** (EPA ORD) [Tier III]	**Air**	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	7 days	Cool to ≤ 6°C	Remove PUF cartridge from sampler, wrap with aluminum foil used to store cartridge, and place in a sealed container. Place container in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
	3535A / 8270E (EPA SW-846) [Tier I]	**Drinking Water** **Non-Drinking Water**	1 L	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	• Add sodium thiosulfate to remove residual chlorine from treated water samples[5] • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018
	3541 / 3545A / **8270E** (EPA SW-846) [Tier I]	**Solid**	250 mL	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
	3570 / 8290 Appendix A / **8270E** (EPA SW-846) [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	Cool ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
Mustard, nitrogen (HN-1) **Mustard, nitrogen (HN-2)** **Mustard, nitrogen (HN-3)**	**TO-17** (EPA ORD) [Tier III]	**Air**	1 – 4 L (flow rate = 16 – 67 mL/min)	Stainless steel, 3.5-inch long tubes with a 6-cm sorbent bed and 1/4-inch o.d.	7 days	Cool to ≤ 6°C	Wrap tube in aluminum foil, and place in a clean sealed container. Place container in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-12/653 (EPA NHSRC) [Tier II - HN-1 and HN-3] [Tier III - HN-2]	**Drinking Water** **Non-Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Wrap container with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-12/653 (EPA NHSRC) [Tier II - HN-1 and HN-3] [Tier III - HN-2]	**Solid**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Wrap containers with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-12/653 (EPA NHSRC) [Tier II - HN-1 and HN-3] [Tier III - HN-2]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Wrap containers with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.

Analyte	Selected Analytical Methods –SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Mustard, sulfur (HD)	**TO-17** (EPA ORD) [Tier III]	**Air**	1 – 4 L (flow rate = 16 – 67 mL/min)	Stainless steel, 3.5-inch long tubes with a 6-cm sorbent bed and 1/4-inch o.d.	7 days	Cool to ≤ 6°C	Wrap tube in aluminum foil, and place in a clean sealed container. Place container in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-16/115 (EPA NHSRC) [Tier I]	**Drinking Water** **Non-Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	Analyze immediately/ as soon as possible	Cool to ≤ 6°C; keep from freezing • Add sodium thiosulfate to remove residual chlorine from treated water samples[5]	Wipe outside of container clean using a damp, then dry cloth. Wrap container with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-16/115 (EPA NHSRC) [Tier I]	**Solid**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Wrap containers with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-16/115 (EPA NHSRC) [Tier I]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Wrap containers with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
N-Ethyldiethanolamine (EDEA) (degradation product of HN-1)	**3509** (NIOSH) [Tier III]	**Air**	0.5 – 300 L (flow rate = 0.5 – 1 L/min)	Impinger (15 mL 2 mM hexanesulfonic acid). [Impinger contents are transferred into VOA vial for shipping.]	21 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film, and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Ethanolamine solutions, 8, Corrosive, UN2491
	D7599-16 (ASTM) [Tier II Non-Drinking Water] [Tier III Drinking Water]	**Drinking Water** **Non-Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Ethanolamine solutions, 8, Corrosive, UN2491
	3541 / 3545A (EPA SW-846) / **EPA/600/R-11/143** (EPA NHSRC/CDC) [SAM Tier III]	**Solid**	250 mL	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Ethanolamine solutions, 8, Corrosive, UN2491
	EPA/600/R-11/123 (EPA NHSRC/CDC) [Tier II]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	125 mL polypropylene container with a polypropylene screw cap	28 days	• Cool to ≤ 6°C • Protect from light	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Ethanolamine solutions, 8, Corrosive, UN2491

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Nicotine compounds (analyze as nicotine)	NA	**Air**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	3535A / 8270E (EPA SW-846) [Tier II]	**Drinking Water** **Non-Drinking Water**	1 L	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	• Add sodium thiosulfate to remove residual chlorine from treated water samples[5] • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Nicotine compounds, liquid, n.o.s, 6.1, Poison, UN3144
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Solid**	40 mL	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Nicotine compounds, solid, n.o.s, 6.1, Poison, UN1655
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Nicotine compounds, solid, n.o.s, 6.1, Poison, UN1655
N-Methyl diethanolamine (MDEA) (degradation product of HN-2)	**3509** (NIOSH) [Tier III]	**Air**	0.5 – 300 L (flow rate = 0.5 – 1 L/min)	Impinger (15 mL 2 mM hexanesulfonic acid) [Impinger contents are transferred into VOA vial for shipping.]	21 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Ethanolamine solutions, 8, Corrosive, UN2491
	D7599-16 (ASTM) [Tier III - Drinking Water] [Tier II - Non-Drinking Water]	**Drinking Water** **Non-Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Ethanolamine solutions, 8, Corrosive, UN2491
	3541 / 3545A (EPA SW-846) / **EPA/600/R-11/123** (EPA NHSRC/CDC) [Tier III]	**Solid**	250 mL	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Ethanolamine solutions, 8, Corrosive, UN2491
	EPA/600/R-11/123 (EPA NHSRC/CDC) [Tier II]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	125 mL polypropylene container with a polypropylene screw cap	28 days	• Cool to ≤ 6°C • Protect from light	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Ethanolamine solutions, 8, Corrosive, UN2491

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
1-Methylethyl ester ethylphosphonofluoridic acid (GE)	**TO-17** (EPA ORD) [Tier III]	**Air**	1 – 4 L (flow rate = 16 – 67 mL/min)	Stainless steel, 3.5-inch long tubes with a 6-cm sorbent bed and 1/4-inch o.d.	7 days	Cool to ≤ 6°C	Wrap tube in aluminum foil, and place in a clean sealed container. Place container in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-16/115 (EPA NHSRC) [Tier III]	**Drinking Water** **Non-Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	• Cool to ≤ 6°C; keep from freezing • Add sodium thiosulfate to remove residual chlorine from treated water samples[5]	Wipe outside of container clean using a damp, then dry cloth. Wrap container with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-16/115 (EPA NHSRC) [Tier III]	**Solid**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Wrap containers with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-16/115 (EPA NHSRC) [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Wrap containers with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	NA	**Air**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	3535A / 8330B (EPA SW-846) [Tier I]	**Drinking Water** **Non-Drinking Water**	1 L	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	• Add sodium thiosulfate to remove residual chlorine from treated water samples[5] • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND HMX, 1.1, Explosive, UN0391[8]
	8330B (EPA SW-846) [Tier I]	**Solid**	250 mL	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND HMX, 1.1 Explosive, UN0391[8]
	3570 / 8290 Appendix A / **8330B** (EPA SW-846) [Tier I]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND HMX, 1.1, Explosive, UN0391[8]

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Osmium tetraoxide (analyze for total osmium)	**IO-3.1 / IO-3.4** (EPA ORD) [Tier II]	**Air**	Up to 1700 m^3	Filter (quartz, silica or cellulose fiber)	Until holding time data are available, analyze immediately/ as soon as possible	Cool to ≤ 6°C	Place filter in protective covering. Place protected filter in double plastic bags, and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Osmium tetroxide, 6.1, Poison, UN2471
	3015A / 6010D / **6020B** (EPA SW-846) [Tier II]	**Drinking Water** **Non-Drinking Water**	125 mL	Glass container	6 months with acidification. Samples must be acidified within 14 days of collection.	1% NH_4OH [7]	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Osmium tetroxide, 6.1, Poison, UN2471
	3051A / 6010D / 6020B (EPA SW-846) [Tier II]	**Solid**	250 mL	Wide-mouth fluoropolymer or glass container with fluoropolymer-lined lid	Analyze immediately/ as soon as possible	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Osmium tetroxide, 6.1, Poison, UN2471
	3051A / 6010D / 6020B (EPA SW-846) [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth fluoropolymer or glass container with fluoropolymer-lined lid	Analyze immediately/ as soon as possible	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Osmium tetroxide, 6.1, Poison, UN2471
Oxamyl	**5601** (NIOSH) [Tier I]	**Air**	240 – 480 L (flow rate = 0.1 – 1 L/min)	Filter/solid sorbent tube (OVS-2 tube: 13 mm quartz fiber filter, XAD-2 [270mg/140 mg])	30 days if frozen; 7 days at room temperature (24°C)	Cool to ≤ 6°C	Wipe outside of sorbent tube clean using a damp, then dry cloth. Cap both ends of the tube with plastic caps. Place tube in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbamate pesticides, solid, toxic, 6.1, UN2757
	D7645-16 (ASTM) [Tier II]	**Non-Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	• Acidify to pH ≤ 3.8 with glacial acetic acid • Cool to ≤ 6°C; keep from freezing • Prior to collection of treated water samples, add 10 mg ascorbic acid to sample container	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbamate pesticides, liquid, toxic, 6.1, Poison, UN2992
	531.2 (EPA OW) [Tier I]	**Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	28 days	• Prior to collection, add 0.4 g potassium dihydrogen citrate and 3.2 – 4.8 mg sodium thiosulfate to sample container • Agitate for 1 minute after collection • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbamate pesticides, liquid, toxic, 6.1, Poison, UN2992
	8318A (EPA SW-846) [Tier II]	**Solid**	250 mL	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbamate pesticides, solid, toxic, 6.1, UN2757
	3570 / 8290 Appendix A / **8318A** (EPA SW-846) [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbamate pesticides, solid, toxic, 6.1, UN2757

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Paraoxon	**TO-10A** (EPA ORD) [Tier III]	**Air**	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	7 days	Cool to ≤ 6°C	Remove PUF cartridge from sampler, wrap with aluminum foil used to store cartridge, and place in a sealed container. Place container in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
	3520C / 3535A / 8270E (EPA SW-846) [Tier III]	**Drinking Water** **Non-Drinking Water**	1 L	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	• Add sodium thiosulfate to remove residual chlorine from treated water samples[5] • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018
	EPA/600/R-16/114 (EPA NHSRC) [Tier III]	**Solid**	40 mL	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
	EPA/600/R-16/114 (EPA NHSRC) [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
Paraquat	NA	**Air**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	549.2 (EPA OW) [Tier I]	**Drinking Water** **Non-Drinking Water**	250 mL	High density PVC or silanized amber glass bottle fitted with screw cap	7 days	• Add 100 mg/L sodium thiosulfate to remove residual chlorine from treated water samples • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Bipyridilium pesticides, liquid, 6.1, Toxic, UN3016
	J. Chromatogr. A (2008) 1196-1197:110-116 [Tier II]	**Solid**	250 mL	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Bipyridilium pesticides, Solid, 6.1, Toxic, UN2811
	J. Chromatogr. A (2008) 1196-1197:110-116 [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Bipyridilium pesticides, Solid, 6.1, Toxic, UN2811

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Parathion	**TO-10A** (EPA ORD) [Tier III]	**Air**	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	7 days	Cool to ≤ 6°C	Remove PUF cartridge from sampler, wrap with aluminum foil used to store cartridge, and place in a sealed container. Place container in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
	3520C / 3535A / 8270E (SW-846) [Tier I]	**Drinking Water** **Non-Drinking Water**	1 L	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	• Add sodium thiosulfate to remove residual chlorine from treated water samples[5] • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Solid**	40 mL	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
Pentaerythritol tetranitrate (PETN)	NA	**Air**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	3535A / 8330B (EPA SW-846) [Tier I]	**Drinking Water** **Non-Drinking Water**	1 L	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	• Add sodium thiosulfate to remove residual chlorine from treated water samples[5] • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND PETN, 1.1, Explosive, UN0411[8]
	8330B (EPA SW-846) [Tier I]	**Solid**	250 mL	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND PETN, 1.1 Explosive, UN0411[8]
	3570 / 8290A Appendix A / **8330B** (EPA SW-846) [Tier I]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND PETN, 1.1 , Explosive, UN0411[8]

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Phencyclidine	**TO-10A** (EPA ORD) [Tier II]	**Air**	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	7 days	Cool to ≤ 6°C	Remove PUF cartridge from sampler, wrap with aluminum foil used to store cartridge, and place in a sealed container. Place container in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Drinking Water** **Non-Drinking Water**	40 mL	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	• Cool to ≤ 6°C; keep from freezing For treated water samples: Preservatives/dechlorinating agents not required, but the analyte is not affected by the following, if added to address other analytes: • Sodium sulfite [5] • 1.6 - 2.0 mg NH_4Cl For all other samples: • Can be adjusted to pH < 2 with 1:1 HCl, but this is not required	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Solid**	40 mL	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label
	9106 / 9109 [NIOSH] (Tier II)	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	30 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label
Phorate	**TO-10A** (EPA ORD) [Tier II]	**Air**	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	7 days	Cool to ≤ 6°C	Remove PUF cartridge from sampler, wrap with aluminum foil used to store cartridge, and place in a sealed container. Place container in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
	3535A / 8270E (EPA SW-846) [Tier I]	**Drinking Water** **Non-Drinking Water**	1 L	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	• Add sodium thiosulfate to remove residual chlorine from treated water samples[5] • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Solid**	40 mL	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Phorate sulfone **Phorate sulfone oxon**	**TO-10A** (EPA ORD) [Tier III]	**Air**	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	7 days	Cool to ≤ 6°C	Remove PUF cartridge from sampler, wrap with aluminum foil used to store cartridge, and place in a sealed container. Place container in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
	540 (EPA OW) [Tier I - Phorate sulfone] [Tier III - Phorate sulfone oxon]	**Drinking Water** **Non-Drinking Water**	250 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	28 days	Add the following to sample containers prior to collection: • 100 mg/L solid ascorbic acid (for removal of residual chlorine from treated water samples) • 2 g/L 2-chloroacetamide (antimicrobial preservative) • 7.75 g/L Trizma® base (buffering agent) After collecting the sample: • Cap the container and agitate until preservative is dissolved • Cool to ≤10°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018
	EPA/600/R-16/114 (EPA NHSRC) [Tier III]	**Solid**	40 mL	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
	EPA/600/R-16/114 (EPA NHSRC) [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Phorate sulfoxide **Phorate sulfoxide oxon**	**TO-10A** (EPA ORD) [Tier III]	**Air**	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	7 days	Cool to ≤ 6°C	Remove PUF cartridge from sampler, wrap with aluminum foil used to store cartridge, and place in a sealed container. Place container in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
	540 (EPA OW) [Tier I - Phorate sulfoxide] [Tier III - Phorate sulfoxide oxon]	**Drinking Water** **Non-Drinking Water**	250 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	28 days	Add the following to sample containers prior to collection: • 100 mg/L solid ascorbic acid (for removal of residual chlorine from treated water samples) • 2 g/L 2-chloroacetamide (antimicrobial preservative) • 7.75 g/L Trizma® base (buffering agent) After collecting the sample: • Cap the container and agitate until preservative is dissolved • Cool to ≤10°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018
	EPA/600/R-16/114 (EPA NHSRC) [Tier III]	**Solid**	40 mL	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
	EPA/600/R-16/114 (EPA NHSRC) [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
Phosgene	**OSHA 61** [Tier I]	**Air**	240 L (flow rate = 1 L/min)	Silane-treated glass tubes [4-mm i.d. × 6-mm o.d. × 11-cm long, and packed with 150 mg/75 mg of pretreated XAD-2 adsorbent coated with 2-HMP (2-[hydroxymethyl] piperidine)]	19 days	Cool to ≤ 6°C	Wipe outside of tube clean using a damp, then dry cloth. Cap ends of tube, wrap tube with OSHA seal, and place in an air tight container containing activated carbon. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Phosgene, 2.3, Poisonous gas, UN1076
	NA	**Non-Drinking Water**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	NA	**Drinking Water**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	NA	**Solid**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	NA	**Wipes**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Phosphamidon	**TO-10A** (EPA ORD) [Tier II]	**Air**	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	7 days	Cool to ≤ 6°C	Remove PUF cartridge from sampler, wrap with aluminum foil used to store cartridge, and place in a sealed container. Place container in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
	3520C / 3535A / 8270E (EPA SW-846) [Tier I]	**Non-Drinking Water**	1 L	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	• Add sodium thiosulfate to remove residual chlorine from treated water samples[5] • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018
	525.3 (EPA OW) [Tier I]	**Drinking Water**	1 L	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	Method 525.2: • Add sodium sulfite to empty sample container to remove residual chlorine from treated water samples • Acidify to pH < 2 with 1:1 HCl[5] • Cool to ≤ 6°C; keep from freezing Method 525.3 (to empty sample container): • Add 4 mg ascorbic acid to remove residual chlorine from treated water samples • Add 14 mg trisodium EDTA, and 400 mg potassium dihydrogen citrate • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Solid**	40 mL	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
Phosphine	**6002** (NIOSH) [Tier I]	**Air**	1 (at 0.3 ppm) – 16 L (flow rate = 0.01 – 0.2 L/min)	Sorbent tube ($Hg(CN)_2$ coated silica gel [300 mg/150 mg])	7 days	Cool to ≤ 6°C	Wipe outside of sorbent tube clean using a damp, then dry cloth. Cap tubes with plastic (not rubber) caps. Place tubes in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Phosphine, 2.3, Poisonous gas, UN2199
	NA	**Non-Drinking Water**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	NA	**Drinking Water**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	NA	**Solid**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	NA	**Wipes**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Phosphorus trichloride	**6402** (NIOSH) [Tier I]	**Air**	11 (at 0.5 ppm) – 100 L (flow rate = 0.05 – 0.2 L/min)	Bubbler (15 mL H_2O) Seal and transfer the bubbler to container for shipping.	Until holding time data are available, analyze immediately/ as soon as possible	Cool to ≤ 6°C; keep from freezing	Wipe outside of ontainer clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap each glass container with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Phosphorus trichloride, 6.1, Poison, UN1809
	NA	**Non-Drinking Water**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	NA	**Drinking Water**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	NA	**Solid**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	NA	**Wipes**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
Pinacolyl methyl phosphonic acid (PMPA) (degradation product of GD)	**TO-10A** (EPA ORD) [Tier III]	**Air**	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	7 days	Cool to ≤ 6°C	Remove PUF cartridge from sampler, wrap with aluminum foil used to store cartridge, and place in a sealed container. Place container in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus compound, toxic, solid, n.o.s, 6.1, Poison, UN3464
	D7597-16 (ASTM) [Tier III - Drinking Water] [Tier II - Non-Drinking Water]	**Drinking Water** **Non-Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	24 hours	Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus compound, toxic, liquid, n.o.s, 6.1, Poison, UN3278
	E2866-12 (ASTM) [Tier II]	**Solid**	250 mL	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus compound, toxic, solid, n.o.s, 6.1, Poison, UN3464
	EPA/600/R-13/224 (EPA NHSRC) [Tier II]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus compound, toxic, solid, n.o.s, 6.1, Poison, UN3464
Propylene oxide	**1612** (NIOSH) [Tier I]	**Air**	0.5 (at 100 ppm) – 5 L (flow rate = 0.01 – 0.2 L/min)	Solid sorbent tube (coconut shell charcoal [100 mg/50 mg])	6 weeks if frozen; 7 days if not frozen	Cool to ≤ 6°C	Wipe outside of sorbent tube clean using a damp, then dry cloth. Cap tubes with plastic (not rubber) caps. Place tubes in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Propylene oxide, 3, Flammable, UN1280.
	5030C / 8260D (EPA SW-846) [Tier II]	**Drinking Water** **Non-Drinking Water**	40 mL	Amber glass or fluoropolymer screw cap VOA vial with fluoropolymer-lined septum, filled with no headspace	14 days with acidification; 7 days if not acidified	• Add sodium thiosulfate to remove residual chlorine from treated water samples[5] • Adjust to pH < 2 with 1:1 HCl • Cool to ≤ 6°C; keep from freezing	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Propylene oxide, 3, Flammable liquid, UN1280
	5035A / 8260D (EPA SW-846) [Tier II]	**Solid**	5-g coring device or amber VOA vial AND 1 – 2 oz. glass jar (if needed to determine percent moisture)	Coring device (If coring device is to be cleaned and reused, samples can be transferred to an amber VOA vial.) AND glass jar (if needed to determine percent moisture)	14 days if frozen; 48 hours if not frozen	Cool to ≤ 6°C; freeze within 48 hours to ≤ negative (-) 7°C [Coring tools should not be frozen below -20°C.]	Wipe outside of coring device or container clean using a damp, then dry cloth. Place the coring device or container in a zipper bag. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Propylene oxide, 3, Flammable, UN1280
	NA	**Wipes**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
R-33 (VR) [methylphosphonothioic acid, S-[2-(diethylamino)ethyl]O-2-methylpropyl ester]	**TO-17** (EPA ORD) [Tier III]	**Air**	1 – 4 L (flow rate = 16 – 67 mL/min)	Stainless steel, 3.5-inch long tubes with a 6-cm sorbent bed and 1/4-inch o.d.	7 days	Cool to ≤ 6°C	Wrap tube in aluminum foil, and place in a clean sealed container. Place container in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-12/653 (EPA NHSRC) [Tier II]	**Drinking Water** **Non-Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	• Cool to ≤ 6°C; keep from freezing • Add sodium thiosulfate to remove residual chlorine from treated water samples[5]	Wipe outside of container clean using a damp, then dry cloth. Wrap container with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-12/653 (EPA NHSRC) [Tier II]	**Solid**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Wrap containers with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-12/653 (EPA NHSRC) [Tier II]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Wrap containers with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
Sarin (GB)	**TO-17** (EPA ORD) [Tier III]	**Air**	1 – 4 L (flow rate = 16 – 67 mL/min)	Stainless steel, 3.5-inch long tubes with a 6-cm sorbent bed and 1/4-inch o.d.	7 days	Cool to ≤ 6°C	Wrap tube in aluminum foil, and place in a clean sealed container. Place container in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-16/115 (EPA NHSRC) [Tier I]	**Drinking Water** **Non-Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	• Cool to ≤ 6°C; keep from freezing • Add sodium thiosulfate to remove residual chlorine from treated water samples[5]	Wipe outside of container clean using a damp, then dry cloth. Wrap container with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-16/115 (EPA NHSRC) [Tier I]	**Solid**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Wrap containers with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-16/115 (EPA NHSRC) [Tier I]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Wrap containers with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Sodium arsenite (analyze as total arsenic)	**IO-3.1 / IO-3.4 / IO-3.5** (EPA ORD) [Tier I]	**Air**	Up to 1700 m^3	Filter (quartz, silica, or cellulose fiber)	6 months	Cool to ≤ 6°C	Place filter in protective covering. Place protected filter in double plastic bags, and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Sodium arsenite, solid, 6.1, Poison, UN2027
	3015A / 6010D / 6020B (EPA SW-846) [Tier I]	**Non-Drinking Water**	125 mL	Fluoropolymer, plastic or glass container	6 months with acidification. Samples must be acidified within 14 days of collection.	• Acidify to pH < 2 with HNO_3[7] [If arsenic species are to be determined, remove unpreserved aliquot prior to sample preservation.] • Acidified samples can be cooled to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Sodium arsenite, aqueous solutions, 6.1, Poison, UN1686
	200.7 / 200.8 (EPA OW) [Tier I]	**Drinking Water**	125 mL	Fluoropolymer, plastic or glass container	6 months with acidification. Samples must be acidified within 14 days of collection.	• Acidify to pH < 2 with HNO_3[7] [If arsenic species are to be determined, remove unpreserved aliquot prior to sample preservation.] • Acidified samples can be cooled to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Sodium arsenite, aqueous solutions, 6.1, Poison, UN1686
	3050B / 3051A / 6010D / 6020B (EPA SW-846) [Tier I]	**Solid**	250 mL	Wide-mouth fluoropolymer, plastic or glass container	Analyze immediately/ as soon as possible	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Sodium arsenite, solid, 6.1, Poison, UN2027
	9102 (NIOSH) / **6010D / 6020B** (EPA SW-846) [Tier I]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth fluoropolymer, plastic or glass container	Analyze immediately/ as soon as possible	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Sodium arsenite, solid, 6.1, Poison, UN2027
Sodium azide (analyze as azide ion)	**ID-211** (OSHA) [Tier I]	**Air**	5 L (flow rate = 1 L/min)	Filter / Sorbent tube (PVC or quartz filter with silica coated sorbent [150 mg/75 mg])	10 days	Cool to ≤ 6°C	Wipe outside of sorbent tube clean using a damp, then dry cloth. Cap both ends of the tube with plastic caps. Place tube in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Sodium azide, 6.1, Poison, UN1687
	J. of Forensic Sciences (1998) 43(1): 200-202 / **300.1, Rev 1.0** (EPA OW) [Tier II]	**Drinking Water** **Non-Drinking Water**	40 mL	Screw-cap VOA vial with fluoropolymer-lined septum	Until holding time data are available, analyze immediately/ as soon as possible	Cool to ≤6°C; keep from freezing	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Sodium azide, 6.1, Poison, UN1687
	J. of Forensic Sciences (1998) 43(1): 200-202 / **300.1, Rev 1.0** (EPA OW) [Tier II]	**Solid**	250 mL	Wide-mouth glass or fluoropolymer container with fluoropolymer-lined septum or lid	Until holding time data are available, analyze immediately/ as soon as possible	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Sodium azide, 6.1, Poison, UN1687
	ID-211 (OSHA) [Tier I]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth glass or fluoropolymer container with fluoropolymer-lined septum or lid	10 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Sodium azide, 6.1, Poison, UN1687

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Soman (GD)	**TO-17** (EPA ORD) [Tier III]	**Air**	1 – 4 L (flow rate = 16 – 67 mL/min)	Stainless steel, 3.5-inch long tubes with a 6-cm sorbent bed and 1/4-inch o.d.	7 days	Cool to ≤ 6°C	Wrap tube in aluminum foil, and place in a clean sealed container. Place container in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-16/115 (EPA NHSRC) [Tier I]	**Drinking Water** **Non-Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	• Cool to ≤ 6°C; keep from freezing • Add sodium thiosulfate to remove residual chlorine from treated water samples[5]	Wipe outside of container clean using a damp, then dry cloth. Wrap container with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-16/115 (EPA NHSRC) [Tier I]	**Solid**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Wrap containers with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-16/115 (EPA NHSRC) [Tier I]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Wrap containers with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
Strychnine	NA	**Air**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	3535A / 8270E (EPA SW-846) [Tier I]	**Drinking Water** **Non-Drinking Water**	1 L	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	• Add sodium thiosulfate to remove residual chlorine from treated water samples[5] • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film. Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Strychnine, 6.1, Poison, UN1692
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Solid**	40 mL	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Strychnine, 6.1, Poison, UN1692
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Strychnine, 6.1, Poison, UN1692

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Tabun (GA)	**TO-17** (EPA ORD) [Tier III]	**Air**	1 – 4 L (flow rate = 16 – 67 mL/min)	Stainless steel, 3.5-inch long tubes with a 6-cm sorbent bed and 1/4-inch o.d.	7 days	Cool to ≤ 6°C	Wrap tube in aluminum foil, and place in a clean sealed container. Place container in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-12/653 (EPA NHSRC) [Tier II]	**Drinking Water** **Non-Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Wrap container with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-12/653 (EPA NHSRC) [Tier II]	**Solid**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Wrap containers with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-12/653 (EPA NHSRC) [Tier II]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Wrap containers with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
Tetraethyl pyrophosphate (TEPP)	**TO-10A** (EPA ORD) [Tier II]	**Air**	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	7 days	Cool to ≤ 6°C	Remove PUF cartridge from sampler, wrap with aluminum foil used to store cartridge, and place in a sealed container. Place container in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
	3511 / 8270E (EPA SW-846) [Tier II]	**Drinking Water** **Non-Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	• Add sodium thiosulfate to remove residual chlorine from treated water samples[5] • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Solid**	40 mL	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool samples to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool samples to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Tetramethylenedisulfo-tetramine (TETS)	**TO-10A** (EPA ORD) [Tier II]	**Air**	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	7 days	Cool to ≤ 6°C	Remove PUF cartridge from sampler, wrap with aluminum foil used to store cartridge, and place in a sealed container. Place container in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Pesticides, solid, toxic, n.o.s, 6.1, Poison, UN2588
	EPA/600/R-16/114 (EPA NHSRC) [Tier I]	**Drinking Water** **Non-Drinking Water**	40 mL	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	• Cool to ≤ 6°C; keep from freezing For treated water samples: Preservatives/dechlorinating agents not required, but the analyte is not affected by the following, if added to address other analytes: • Sodium sulfite [5] • 1.6 - 2.0 mg NH_4Cl For all other samples: • Can be adjusted to pH < 2 with 1:1 HCl, but this is not required	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Pesticides, liquid, toxic, n.o.s, 6.1, Poison, UN2902
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Solid**	40 mL	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Pesticides, solid, toxic, n.o.s, 6.1, Poison, UN2588
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Pesticides, solid, toxic, n.o.s, 6.1, Poison, UN2588
Thallium sulfate (analyze as total thallium)	**IO-3.1 / IO-3.4 / IO-3.5** (EPA ORD) [Tier I]	**Air**	Up to 1700 m^3	Filter (quartz, silica, or cellulose fiber)	6 months	Cool to ≤ 6°C	Place filter in protective covering. Place protected filter in double plastic bags, and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Thallium compounds n.o.s, 6.1, Poison, UN1707
	3015A / 6010D / 6020B (EPA SW-846) [Tier I]	**Non-Drinking Water**	125 mL	Fluoropolymer, plastic or glass container	6 months with acidification. Samples must be acidified within 14 days of collection.	• Acidify to pH < 2 with HNO_3[7] • Acidified samples can be cooled to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Thallium compounds n.o.s, 6.1, Poison, UN1707
	200.7 / 200.8 (EPA OW) [Tier I]	**Drinking Water**	125 mL	Fluoropolymer, plastic or glass container	6 months with acidification. Samples must be acidified within 14 days of collection.	• Acidify to pH < 2 with HNO_3[7] • Acidified samples can be cooled to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Thallium compounds n.o.s, 6.1, Poison, UN1707
	3050B / 3051A / 6010D / 6020B (EPA SW-846) [Tier I]	**Solid**	250 mL	Wide-mouth fluoropolymer, plastic or glass container	Analyze immediately/ as soon as possible	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Thallium compounds n.o.s, 6.1, Poison, UN1707
	9102 (NIOSH) / **6010D / 6020B** (EPA SW-846) [Tier I]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth fluoropolymer, plastic or glass container	Analyze immediately/ as soon as possible	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Thallium compounds n.o.s, 6.1, Poison, UN1707

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Thiodiglycol (TDG) (degradation product of HD)	**TO-10A** (EPA ORD) [Tier III]	**Air**	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	7 days	Cool to ≤ 6°C	Remove PUF cartridge from sampler, wrap with aluminum foil used to store cartridge, and place in a sealed container. Place container in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Aviation regulated solid, n.o.s, UN3335
	D7598-16 (ASTM) [Tier III - Drinking Water] [Tier II - Non-Drinking Water]	**Drinking Water** **Non-Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	24 hours	Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Aviation regulated liquid, n.o.s, UN3334
	E2787-11 (ASTM) [Tier II]	**Solid**	250 mL	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Aviation regulated solid, n.o.s, UN3335
	E2838-11 (ASTM) [Tier II]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Aviation regulated solid, n.o.s, UN3335

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Thiofanox	**5601** (NIOSH) [Tier III]	**Air**	240 – 480 L (flow rate = 0.1 – 1.0 L/min)	Filter/solid sorbent tube (OVS-2 tube: 13 mm quartz filter, XAD-2, [270 mg/140 mg])	30 days if frozen; 7 days at room temperature (24°C)	Cool to ≤ 6°C	Wipe outside of sorbent tube clean using a damp, then dry cloth. Cap both ends of the tube with plastic caps. Place tube in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbamate pesticides, solid, toxic, 6.1, UN2757
	D7645-16 (ASTM) [Tier II]	**Non-Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	• Acidify to pH ≤ 3.8 with glacial acetic acid • Cool to ≤ 6°C; keep from freezing • Prior to collection of treated water samples, add 10 mg ascorbic acid to sample container	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbamate pesticides, liquid, toxic, 6.1, Poison, UN2992
	538 (EPA OW) [Tier I]	**Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	• Prior to collection, add 400 µL of ammonium acetate concentrated stock and 80 µL of concentrated sodium omadine stock to sample container. [If volumes other than 40-mL are collected, the concentration of ammonium acetate and sodium omadine in the sample should be 1.5 g/L and 64 mg/L, respectively.] • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbamate pesticides, liquid, toxic, 6.1, Poison, UN2992
	3541 / 3545A (EPA SW-846) / **D7645-16** (ASTM) [Tier III]	**Solid**	250 mL	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	Until holding time data are available, analyze immediately/ as soon as possible	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbamate pesticides, solid, toxic, 6.1, UN2757
	3570 / 8290A Appendix A (EPA SW-846) / **D7645-16** (ASTM) [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbamate pesticides, solid, toxic, 6.1, UN2757

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
1,4-Thioxane (degradation product of HD)	NA	**Air**	Not of concern in this sample type					
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Drinking Water** **Non-Drinking Water**	40 mL	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	• Cool to ≤ 6°C; keep from freezing For treated water samples: • Add sodium sulfite to remove residual chlorine[5] OR • Add 1.6 - 2.0 mg NH_4Cl For all other samples: • Adjust to pH < 2 with 1:1 HCl	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Flammable Liquids, n.o.s, 3, Flammable, UN1993
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Solid**	40 mL	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Flammable Solid, n.o.s, 3, Flammable, UN1325
	EPA/600/R-16/114 (EPA NHSRC) [Tier II]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Amber glass or fluoropolymer screw-cap VOA vial with fluoropolymer-lined septum	14 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film (e.g., fluoropolymer-based), and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Flammable Solid, n.o.s, 3, Flammable, UN1325
Titanium tetrachloride (analyze as total titanium)	NA	**Air**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	NA	**Non-Drinking Water**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	NA	**Drinking Water**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	3050B / 3051A / 6010D / 6020B (EPA SW-846) [Tier I]	**Solid**	250 mL	Wide-mouth fluoropolymer, plastic or glass container	Analyze immediately/ as soon as possible	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Titanium tetrachloride, 8, Corrosive, UN1838
	3051A / 6010D / 6020B (EPA SW-846) [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth fluoropolymer or glass container with fluoropolymer-lined lid	Analyze immediately/ as soon as possible	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Titanium tetrachloride, 8, Corrosive, UN1838
Triethanolamine (TEA) (degradation product of HN-3)	**3509** (NIOSH) [Tier II]	**Air**	0.5 – 300 L (flow rate = 0.5 – 1 L/min)	Impinger (15 mL 2 mM hexanesulfonic acid) [Impinger contents are transferred into VOA vial for	21 days	Cool to ≤ 6°C	Wipe outside of vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film, and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Ethanolamine solutions, 8, Corrosive, UN2491
	D7599-16 (ASTM) [Tier III - Drinking Water] [Tier II - Non-Drinking Water]	**Drinking Water** **Non-Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Ethanolamine solutions, 8, Corrosive, UN2491
	3541 / 3545A (EPA SW-846) / **EPA/600/R-11/123** (EPA NHSRC/CDC) [Tier III]	**Solid**	250 mL	Wide-mouth amber glass, fluoropolymer or polypropylene container	14 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Ethanolamine solutions, 8, Corrosive, UN2491
	EPA/600/R-11/123 (EPA NHSRC/CDC) [Tier II]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth amber glass, fluoropolymer or polypropylene container	28 days	• Cool to ≤ 6°C • Protect from light	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Ethanolamine solutions, 8, Corrosive, UN2491

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
Trimethyl phosphite	**TO-10A** (EPA ORD) [Tier III]	**Air**	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	7 days	Cool to ≤ 6°C	Remove PUF cartridge from sampler, wrap with aluminum foil used to store cartridge, and place in a sealed container. Place container in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Trimethyl phosphite, 3, Flammable, UN2329
	NA	**Non-Drinking Water**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	NA	**Drinking Water**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	3541 / 3545A / 8270E (EPA SW-846) [Tier III]	**Solid**	250 mL	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Trimethyl phosphite, 3, Flammable, UN2329
	3570 / 8290 Appendix A / **8270E** (EPA SW-846) [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Trimethyl phosphite, 3, Flammable, UN2329
1,3,5-Trinitrobenzene (1,3,5-TNB)	NA	**Air**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	3535A / 8330B (EPA SW-846) [Tier I]	**Drinking Water** **Non-Drinking Water**	1 L	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	• Add sodium thiosulfate to remove residual chlorine from treated water samples[5] • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Trinitrobenzene and trinitrotoluene mixtures, 1.1, Explosive, UN0388[8]
	8330B (EPA SW-846) [Tier I]	**Solid**	250 mL	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Trinitrobenzene and trinitrotoluene mixtures, 1.1, Explosive, UN0388[8]
	3570 / 8290A Appendix A / **8330B** (EPA SW-846) [Tier I]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Trinitrobenzene and trinitrotoluene mixtures, 1.1, Explosive, UN0388[8]

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
2,4,6-Trinitrotoluene (2,4,6-TNT)	NA	**Air**	For the purposes of this document, this analyte is not considered to be a concern in this sample type					
	3535A / 8330B (EPA SW-846) [Tier I]	**Drinking Water** **Non-Drinking Water**	1 L	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	• Add sodium thiosulfate to remove residual chlorine from treated water samples[5] • Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Trinitrobenzene and trinitrotoluene mixtures, 1.1, Explosive, UN0388[8]
	8330B (EPA SW-846) [Tier I]	**Solid**	250 mL	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	14 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Trinitrobenzene and trinitrotoluene mixtures, 1.1, Explosive, UN0388[8]
	3570 / 8290A Appendix A / **8330B** (EPA SW-846) [Tier I]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Trinitrobenzene and trinitrotoluene mixtures, 1.1, Explosive, UN0388[8]
Vanadium pentoxide (analyze as total vanadium)	**IO-3.1 / IO-3.4 / IO-3.5** (EPA ORD) [Tier I]	**Air**	Up to 1700 m^3	Filter (quartz, silica, or cellulose fiber)	6 months	Cool to ≤ 6°C	Place filter in protective covering. Place protected filter in double plastic bags, and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Vanadium pentoxide, 6.1, Poison, UN2862
	3015A / 6010D / 6020B (EPA SW-846) [Tier I]	**Non-Drinking Water**	125 mL	Fluoropolymer, plastic or glass container	6 months with acidification. Samples must be acidified within 14 days of collection.	• Acidify to pH < 2 with HNO_3[7] • Acidified samples can be cooled to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Vanadium pentoxide, 6.1, Poison, UN2862
	200.7 / 200.8 (EPA OW) [Tier I]	**Drinking Water**	125 mL	Fluoropolymer, plastic or glass container	6 months with acidification. Samples must be acidified within 14 days of collection.	• Acidify to pH < 2 with HNO_3[7] • Acidified samples can be cooled to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Vanadium pentoxide, 6.1, Poison, UN2862
	3050B / 3051A / 6010D / 6020B (EPA SW-846) [Tier I]	**Solid**	250 mL	Wide-mouth fluoropolymer, plastic or glass container	Analyze immediately/ as soon as possible	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Vanadium pentoxide, 6.1, Poison, UN2862
	9102 (NIOSH) / **6010D / 6020B** (EPA SW-846) [Tier I]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth fluoropolymer, plastic or glass container	Analyze immediately/ as soon as possible	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Vanadium pentoxide, 6.1, Poison, UN2862

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
VE [Phosphonothioic acid, ethyl-, S-(2-(diethylamino)ethyl) O-ethyl ester]	**TO-17** (EPA ORD) [Tier III]	**Air**	1 – 4 L (flow rate = 16 – 67 mL/min)	Stainless steel, 3.5-inch long tubes with a 6-cm sorbent bed and 1/4-inch o.d.	7 days	Cool to ≤ 6°C	Wrap tube in aluminum foil, and place in a clean sealed container. Place container in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-16/116 (EPA NHSRC) [Tier III]	**Drinking Water** **Non-Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	• Cool to ≤ 6°C; keep from freezing • Add sodium thiosulfate to remove residual chlorine from treated water samples[5]	Wipe outside of container clean using a damp, then dry cloth. Wrap container with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-16/116 (EPA NHSRC) [Tier III]	**Solid**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Wrap container with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-16/116 (EPA NHSRC) [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Wrap container with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
VG [Phosphonothioic acid, S-(2-(diethylamino)ethyl) O,O-diethyl ester]	**TO-17** (EPA ORD) [Tier III]	**Air**	1 – 4 L (flow rate = 16 – 67 mL/min)	Stainless steel, 3.5-inch long tubes with a 6-cm sorbent bed and 1/4-inch o.d.	7 days	Cool to ≤ 6°C	Wrap tube in aluminum foil, and place in a clean sealed container. Place container in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-16/116 (EPA NHSRC) [Tier III]	**Drinking Water** **Non-Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	• Cool to ≤ 6°C; keep from freezing • Add sodium thiosulfate to remove residual chlorine from treated water samples[5]	Wipe outside of container clean using a damp, then dry cloth. Wrap container with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-16/116 (EPA NHSRC) [Tier III]	**Solid**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Wrap container with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-16/116 (EPA NHSRC) [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Wrap container with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
VM [Phosphonothioic acid, methyl-,S-(2-(diethylamino)ethyl) O-ethyl ester]	**TO-17** (EPA ORD) [Tier III]	**Air**	1 – 4 L (flow rate = 16 – 67 mL/min)	Stainless steel, 3.5-inch long tubes with a 6-cm sorbent bed and 1/4-inch o.d.	7 days	Cool to ≤ 6°C	Wrap tube in aluminum foil, and place in a clean sealed container. Place container in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-16/116 (EPA NHSRC) [Tier III]	**Drinking Water** **Non-Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	• Cool to ≤ 6°C; keep from freezing • Add sodium thiosulfate to remove residual chlorine from treated water samples[5]	Wipe outside of container clean using a damp, then dry cloth. Wrap container with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-16/116 (EPA NHSRC) [Tier III]	**Solid**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Wrap container with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-16/116 (EPA NHSRC) [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Wrap container with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.

Analyte	Selected Analytical Methods – SAM 2017*	Sample Type	Sample Size[1]	Sample Container[2]	Holding Time	Preservation	Packaging Requirements	Shipping Label[3]
VX [O-ethyl-S-(2-diisopropylaminoethyl) methyl-phosphonothiolate]	**TO-17** (EPA ORD) [Tier III]	**Air**	1 – 4 L (flow rate = 16 – 67 mL/min)	Stainless steel, 3.5-inch long tubes with a 6-cm sorbent bed and 1/4-inch o.d.	7 days	Cool to ≤ 6°C	Wrap tube in aluminum foil, and place in a clean sealed container. Place container in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-16/116 (EPA NHSRC) [Tier I]	**Drinking Water** **Non-Drinking Water**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	• Cool to ≤ 6°C; keep from freezing • Add sodium thiosulfate to remove residual chlorine from treated water samples[5]	Wipe outside of container clean using a damp, then dry cloth. Wrap container with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-16/116 (EPA NHSRC) [Tier II]	**Solid**	40 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Wrap container with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
	EPA/600/R-16/116 (EPA NHSRC) [Tier II]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	7 days	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Wrap container with bubble wrap. Place in gallon plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures, then into metal can before placing in cooler.	Consult laboratory and/or shipping vendor on specifics regarding shipping label. Wipe outer surface of package with a bleach wipe, taking care not to obscure labeling.
White phosphorus	**7905** (NIOSH) [Tier I]	**Air**	5 L (at 0.1 mg/m^3) – 100 L (flow rate = 0.01 – 0.2 L/min)	Solid sorbent tube (Tenax GC [100 mg/50 mg])	7 days	Cool to ≤ 6°C	Wipe outside of sorbent tube clean using a damp, then dry cloth. Cap tubes with plastic (not rubber) caps. Place tubes in double plastic bags and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Phosphorus, white (dry or wetted), 4.2, Spontaneously combustible, 6.1, Poison, UN1381
	7580 (EPA SW-846) [Tier I]	**Drinking Water** **Non-Drinking Water**	500 mL	Amber glass or fluoropolymer container with fluoropolymer-lined septum or lid; fill to overflowing to eliminate headspace	5 days	Cool to ≤ 6°C; keep from freezing	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Phosphorus, white (dry or wetted), 4.2, Spontaneously combustible, 6.1, Poison, UN1381
	7580 (EPA SW-846) [Tier I]	**Solid**	250 mL	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	Samples can be held indefinitely if sealed tightly to eliminate moisture loss	Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Phosphorus, white (dry or wetted), 4.2, Spontaneously combustible, 6.1, Poison, UN1381
	3570 / 8290A Appendix A / **7580** (EPA SW-846) [Tier III]	**Wipes**	1 wipe/100 cm^2 or 1 wipe/ft^2	Wide-mouth amber glass or fluoropolymer container with fluoropolymer-lined septum or lid	Samples can be held indefinitely if sealed tightly to eliminate moisture loss.	• Cool to ≤ 6°C	Wipe outside of container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film (e.g., fluoropolymer-based). Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Phosphorus, white (dry or wetted), 4.2, Spontaneously combustible, 6.1, Poison, UN1381

Footnotes:

NA Not applicable

***** EPA's SAM lists the analytical methods that have been selected by multi-agency technical work groups for use by laboratories that are tasked with sample analysis following a contamination incident. The method tiers listed reflect the extent of method validation and indicate the level of method usability for the specific analyte and sample type. These tiers are defined in the Chemical Methods Query on the *Selected Analytical Methods for Environmental Remediation and Recovery* website:
https://www.epa.gov/homeland-security-research/sam-chemical-methods-query.

(1) Sample sizes are based on the minimum amount needed for analysis of a single sample. Additional sample amounts may be requested or needed for laboratory quality control analyses (e.g., duplicates, matrix spikes) or for measurement of low analyte concentrations. It is also recommended that additional sample(s) be collected in case of the need for reanalysis due to sample spillage or unforeseen analytical difficulties. Where possible, sample sizes are based on specifications included in the selected analytical methods.
- Wipe areas may need to be adjusted based on anticipated analyte concentration. Wipe sample areas are based on U.S. Office of Research and Development, "A Literature Review of Wipe Sampling Methods for Chemical Warfare Agents and Toxic Industrial Chemicals," EPA/600/R-07/004 January 2007.
- Solid samples should be collected into containers without packing.

(2) Use of "certified clean" containers is preferred. Otherwise, use glassware cleaning instructions found in Chapter 3 of SW-846. Rinse with detergent, followed by tap water, 1:1 nitric acid:tap water, 1:1 hydrochloric acid:tap water, and reagent water. Prior to use, wash vials and septa with detergent and rinse with tap and distilled water. Allow the vials and septa to air dry at room temperature, place in a 105°C oven for 1 hr, then remove and allow to cool in an area known to be free of organics.

(3) Environmental samples are shipped as nonhazardous cargo if they do not exhibit one of the following U.S. DOT hazard classes: explosive, corrosive, flammable, or poisonous. Only a standard shipping carrier's label is needed in these cases. If any sample is listed under one of these classes, DOT labeling is required. The DOT label must indicate, PSN (49 CFR 172.301), the UN Number (49 CFR 172.301), appropriate hazard class and descriptor (49 CFR 172.101), and "Limited Quantity" when a quantity exception is used (49 CFR 172.101). When the quantity limit for a given substance is exceeded, the phrase "Limited Quantity" should be excluded from the label. Note that there are no "exceptions" for substances belonging to DOT Division 1.1, Division 2.1, Division 2.3 or Division 4.2. Exception quantities include:
- Exception for Class 3, flammable and combustible liquids: Ensure total net quantity of Class 3 substances does not exceed 1 L (0.3 gal) (49 CFR 173.150)
- Exception for Division 5.1, oxidizers and Class 9, miscellaneous hazardous materials (see 49 CFR 173.127 for packing group definitions), Packing group II: Ensure the total net quantity does not exceed 1.0 L (0.3 gallons) of liquid or 1.0 kg (2.2 lbs) of solid (49 CFR 173.152); Packing group III: Ensure the total net quantity does not exceed 5 L (1.3 gallons) of liquid or 5.0 kg (11 lbs) of solid (49 CFR 173.152)
- Exception for Division 6.1, poisonous liquids: Ensure the total net quantity of Class 6.1 liquids does not exceed 4 L (1 gal) of liquid or 5 kg (11 lbs) of solid (49 CFR 173.153)
- Exception for Class 8, corrosive materials: Ensure total net quantity of Class 8 materials does not exceed 5 L (1.3 gal) of liquid or 5 kg (11 lbs) of solid (49 CFR 173.154)
- Shipment of samples containing reactive levels (>12%) of energetic material residues using domestic carriers is prohibited. If samples are known or suspected to contain >12% of energetic material residues, ship and label according to DOT requirements for secondary explosive materials.

(4) Pack sample transport containers outside the contaminated area. Samples must be packed in a manner that protects the integrity of the samples and provides temperature conditions required for sample preservation. Samples should be surrounded by shock- and water-absorbent packing materials or ice (if required for preservation) and shipped in a cooler to ensure sample temperatures do not exceed preservation requirements. If the target analytes are unknown, samples should be maintained at ≤ 6°C, but above freezing. Ice should be placed in separate plastic bags or cold packs should be used to avoid leakage, and the bags placed around, among, and on top of the sample containers.

(5) Sodium thiosulfate or sodium sulfite should be added to treated drinking water or wastewater samples containing residual chlorine. These dechlorinating agents can be added either prior to or after sample collection, but before sample preservation.
- For sodium thiosulfate, an amount equivalent to the following is recommended: 3 mg/40-mL sample, or 3 mg/5 mg chlorine residual.
- For sodium sulfite, an amount equivalent to the following is recommended: for a 1-L sample, add 40 - 50 mg sodium sulfite (1.6 - 2 mg/40-mL sample), either prior to or after collecting the sample.

(6) This method applies to ambient concentrations of VOCs above 0.5 ppbv and typically requires VOC enrichment by concentrating up to 1 L of sample volume; however, when using current technologies, quantifications of approximately 100 pptv have been achieved with 0.5-L sample volumes.

(7) If sample collectors are not able to preserve samples in the field (e.g., acid preservatives are not available), the samples may be preserved in the laboratory. If preserved in the laboratory, however, samples must be held for at least 24 hours prior to analysis.

(8) Samples containing secondary explosives at concentrations less than 10% by weight (100,000 mg/kg) or primary explosives at concentrations less than 2% can be sent as normal environmental samples. Consult laboratory on specifics regarding shipping label and shipping requirements for samples with concentrations greater than these amounts.

Attachment B1

Sample Collection Information for the Environmental Samples, Radiochemical Analytes and Methods Listed in SAM 2017

[Note: The acronyms and abbreviations used in this attachment are listed and defined in the beginning of the report.]

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Attachment B1: Sample Collection Information for the Environmental Samples, Radiochemical Analytes and Methods Listed in SAM 2017

Packaging Requirements: Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film. Determine the radiation-specific activity of the sample(s) and pack samples outside the contaminated area as described in Footnote (1).
Shipping Label: Shipping labels per requirements of 49 CFR 173. Determine the radiation levels on the surface and at 1 meter from the surface of the package, and label. Refer to information in Footnote (2).

Analyte	Sample Type	Sample Size Collected[3]	Sample Container[4]	Holding Time[4]	Sample Preservation[4]	Analytical Method[5]
Gross Alpha	Air Filter	1 filter (limited to counting geometry size)	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4]	No preservation required	FRMAC, Vol. 2, pg. 33 (DOE)
	Aqueous & Liquid	2 – 4 L (solids limited)	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4]	Preserve sample with HNO_3 or HCl to pH < 2 [6]	7110 B (SM)
	Drinking Water	2 – 4 L (solids limited)	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4]	Preserve sample with HNO_3 or HCl to pH < 2 [6]	900.0 (EPA)
	Soil & Sediment	100 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar or plastic bag. Borosilicate glass wide-mouth jar may also be used.	Maximum 6 months[4]	No preservation required	AP1 (ORISE)
	Surface Wipes	1 wipe (limited to counting geometry size)	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4]	No preservation required	FRMAC, Vol. 2, pg. 33 (DOE)
	Vegetation	1-gallon tightly packed zipper-locked bag or plastic container	Plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures OR wide-mouth plastic container	Maximum 6 months[4]	No preservation required	AP1 (ORISE)
Gross Beta	Air Filter	1 filter (limited to counting geometry size)	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4]	No preservation required	FRMAC, Vol. 2, pg. 33 (DOE)
	Aqueous & Liquid	2 – 4 L (solids limited)	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4]	Preserve sample with HNO_3 or HCl to pH < 2 [6]	7110 B (SM)
	Drinking Water	2 – 4 L (solids limited)	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4]	Preserve sample with HNO_3 or HCl to pH < 2 [6]	900.0 (EPA)
	Soil & Sediment	100 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag. Borosilicate glass wide-mouth jar may also be used.	Maximum 6 months[4]	No preservation required	AP1 (ORISE)
	Surface Wipes	1 wipe (limited to counting geometry size)	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4]	No preservation required	FRMAC, Vol. 2, pg. 33 (DOE)
	Vegetation	1-gallon tightly packed zipper-locked bag or plastic container	Plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures OR wide-mouth plastic container	Maximum 6 months[4]	No preservation required	AP1 (ORISE)

Packaging Requirements: Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film. Determine the radiation-specific activity of the sample(s) and pack samples outside the contaminated area as described in Footnote (1).
Shipping Label: Shipping labels per requirements of 49 CFR 173. Determine the radiation levels on the surface and at 1 meter from the surface of the package, and label. Refer to information in Footnote (2).

Analyte	Sample Type	Sample Size Collected[3]	Sample Container[4]	Holding Time[4]	Sample Preservation[4]	Analytical Method[5]
Gamma **Select Mixed Fission Products**	Air Filter	1 filter (limited to counting geometry size)	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4]	No preservation required	Ga-01-R (HASL-300)
	Aqueous & Liquid	2 − 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4]	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Ga-01-R (HASL-300)
	Drinking Water	2 − 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4]	Preserve sample with HNO_3 or HCl to pH < 2 [6]	901.1 (EPA)
	Soil & Sediment	100 − 1,000 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar or plastic bag. Borosilicate glass wide-mouth jar may also be used.	Maximum 6 months[4]	No preservation required	Ga-01-R (HASL-300)
	Surface Wipes	1 wipe (limited to counting geometry size)	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4]	No preservation required	Ga-01-R (HASL-300)
	Vegetation	1-gallon tightly packed zipper-locked bag or plastic container	Plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures OR wide-mouth plastic container	Maximum 6 months[4]	No preservation required	Ga-01-R (HASL-300)
Total Activity Screening	Air Filter	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4]	No preservation required	Preparation of Samples for Total Activity Screening (Y-12)
	Aqueous & Liquid	2 − 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4]	No preservation required	Preparation of Samples for Total Activity Screening (Y-12)
	Drinking Water	2 − 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4]	No preservation required	Preparation of Samples for Total Activity Screening (Y-12)
	Soil & Sediment	100 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar or plastic bag. Borosilicate glass wide-mouth jar may also be used.	Maximum 6 months[4]	No preservation required. If Tc-99 is to be assessed, a separate sample will be necessary.	Preparation of Samples for Total Activity Screening (Y-12)
	Surface Wipes	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4]	No preservation required. If Tc-99 is to be assessed, a separate sample will be necessary.	Preparation of Samples for Total Activity Screening (Y-12)
	Vegetation	1-gallon tightly packed zipper-locked bag or plastic container	Plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures OR wide-mouth plastic container	Maximum 6 months[4]	No preservation required. If Tc-99 is to be assessed, a separate sample will be necessary.	Preparation of Samples for Total Activity Screening (Y-12)

Packaging Requirements: Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film. Determine the radiation-specific activity of the sample(s) and pack samples outside the contaminated area as described in Footnote (1).
Shipping Label: Shipping labels per requirements of 49 CFR 173. Determine the radiation levels on the surface and at 1 meter from the surface of the package, and label. Refer to information in Footnote (2).

Analyte	Sample Type	Sample Size Collected[3]	Sample Container[4]	Holding Time[4]	Sample Preservation[4]	Analytical Method[5]
Americium-241 (alpha)	Air Filter	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Am-241 half life = 432 years)	No preservation required	Qualitative: Rapid Methods for Acid or Fusion Digestion (EPA) Confirmatory: Am-04-RC (HASL-300)
	Aqueous & Liquid	2 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Am-241 half life = 432 years)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative: D3084-05 (ASTM) Confirmatory: Am-04-RC (HASL-300)
	Drinking Water	2 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Am-241 half life = 432 years)	Qualitative: No sample preservation is required if sample is delivered to the laboratory within 3 days of collection. If the sample is to be held for more than 3 days, add concentrated HNO_3 to achieve a pH < 2. Confirmatory: Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative: Rapid Radiochemical Method for Am-241 (EPA) Confirmatory: Am-04-RC (HASL-300)
	Soil & Sediment	100 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar or plastic bag. Borosilicate glass wide-mouth jar may also be used.	Maximum 6 months[4] (Am-241 half life = 432 years)	No preservation required	Qualitative: Rapid Method for Fusion of Soil and Soil-Related Matrices (EPA) Confirmatory: Am-01-RC (HASL-300)
	Surface Wipes	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Am-241 half life = 432 years)	No preservation required	Qualitative: Rapid Methods for Acid or Fusion Digestion (EPA) Confirmatory: Am-04-RC (HASL-300)
	Vegetation	1-gallon tightly packed zipper-locked bag or plastic container	Plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures OR wide-mouth plastic container	Maximum 6 months[4] (Am-241 half life = 432 years)	No preservation required	Qualitative: Actinides and Sr-89/90 in Vegetation (DOE SRS) Confirmatory: Am-06-RC (HASL-300)

Packaging Requirements: Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film. Determine the radiation-specific activity of the sample(s) and pack samples outside the contaminated area as described in Footnote (1).
Shipping Label: Shipping labels per requirements of 49 CFR 173. Determine the radiation levels on the surface and at 1 meter from the surface of the package, and label. Refer to information in Footnote (2).

Analyte	Sample Type	Sample Size Collected[3]	Sample Container[4]	Holding Time[4]	Sample Preservation[4]	Analytical Method[5]
Americium-241 (gamma)	Air Filter	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Am-241 half life = 432 years)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Aqueous & Liquid	2 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Am-241 half life = 432 years)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative and Confirmatory: 7120 (SM)
	Drinking Water	2 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Am-241 half life = 432 years)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative and Confirmatory: 901.1 (EPA)
	Soil & Sediment	100 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar or plastic bag. Borosilicate glass wide-mouth jar may also be used.	Maximum 6 months[4] (Am-241 half life = 432 years)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Surface Wipes	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Am-241 half life = 432 years)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Vegetation	1-gallon tightly packed zipper-locked bag or plastic container	Plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures OR wide-mouth plastic container	Maximum 6 months[4] (Am-241 half life = 432 years)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
Californium-252	Air Filter	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Cf-252 half life = 2.64 years)	No preservation required	Qualitative: D3084-05 (ASTM) Confirmatory: Rapid Radiochemical Method for Californium-252 (EPA)
	Aqueous & Liquid	2 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Cf-252 half life = 2.64 years)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative: D3084-05 (ASTM) Confirmatory: Rapid Radiochemical Method for Californium-252 (EPA)
	Drinking Water	2 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Cf-252 half life = 2.64 years)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative: D3084-05 (ASTM) Confirmatory: Rapid Radiochemical Method for Californium-252 (EPA)
	Soil & Sediment	100 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag. Borosilicate glass wide-mouth jar may also be used.	Maximum 6 months[4] (Cf-252 half life = 2.64 years)	No preservation required	Qualitative: D3084-05 (ASTM) Confirmatory: Rapid Radiochemical Method for Californium-252 (EPA)
	Surface Wipes	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Cf-252 half life = 2.64 years)	No preservation required	Qualitative: D3084-05 (ASTM) Confirmatory: Rapid Radiochemical Method for Californium-252 (EPA)
	Vegetation	1-gallon tightly packed zipper-locked bag or plastic container	Plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures OR wide-mouth plastic container	Maximum 6 months[4] (Cf-252 half life = 2.64 years)	No preservation required	Qualitative: D3084-05 (ASTM) Confirmatory: Am-06-RC (HASL-300)

Packaging Requirements: Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film. Determine the radiation-specific activity of the sample(s) and pack samples outside the contaminated area as described in Footnote (1).
Shipping Label: Shipping labels per requirements of 49 CFR 173. Determine the radiation levels on the surface and at 1 meter from the surface of the package, and label. Refer to information in Footnote (2).

Analyte	Sample Type	Sample Size Collected[3]	Sample Container[4]	Holding Time[4]	Sample Preservation[4]	Analytical Method[5]
Cesium-137	Air Filter	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Cs-137 half life = 30.17 years)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Aqueous & Liquid	2 − 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Cs-137 half life = 30.17 years)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative and Confirmatory: 7120 (SM)
	Drinking Water	2 − 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Cs-137 half life = 30.17 years)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative and Confirmatory: 901.1 (EPA)
	Soil & Sediment	100 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar or plastic bag. Borosilicate glass wide-mouth jar may also be used.	Maximum 6 months[4] (Cs-137 half life = 30.17 years)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Surface Wipes	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Cs-137 half life = 30.17 years)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Vegetation	1-gallon tightly packed zipper-locked bag or plastic container	Plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures OR wide-mouth plastic container	Maximum 6 months[4] (Cs-137 half life = 30.17 years)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
Cobalt-60	Air Filter	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Co-60 half life = 5.27 years)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Aqueous & Liquid	2 − 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Co-60 half life = 5.27 years)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative and Confirmatory: 7120 (SM)
	Drinking Water	2 − 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Co-60 half life = 5.27 years)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative and Confirmatory: 901.1 (EPA)
	Soil & Sediment	100 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar or plastic bag. Borosilicate glass wide-mouth jar may also be used.	Maximum 6 months[4] (Co-60 half life = 5.27 years)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Surface Wipes	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Co-60 half life = 5.27 years)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Vegetation	1-gallon tightly packed zipper-locked bag or plastic container	Plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures OR wide-mouth plastic container	Maximum 6 months[4] (Co-60 half life = 5.27 years)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)

Packaging Requirements: Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film. Determine the radiation-specific activity of the sample(s) and pack samples outside the contaminated area as described in Footnote (1).
Shipping Label: Shipping labels per requirements of 49 CFR 173. Determine the radiation levels on the surface and at 1 meter from the surface of the package, and label. Refer to information in Footnote (2).

Analyte	Sample Type	Sample Size Collected[3]	Sample Container[4]	Holding Time[4]	Sample Preservation[4]	Analytical Method[5]
Curium-244	Air Filter	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Cm-244 half life = 18.1 years)	No preservation required	Qualitative: D3084-05 (ASTM) Confirmatory: Rapid Radiochemical Method for Curium-244 in Air Particulate Filters, Swipes and Soil (EPA)
	Aqueous & Liquid	2 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Cm-244 half life = 18.1 years)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative: D3084-05 (ASTM) Confirmatory: Rapid Radiochemical Method for Curium-244 in Air Particulate Filters, Swipes and Soil (EPA)
	Drinking Water	2 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Cm-244 half life = 18.1 years)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative: D3084-05 (ASTM) Confirmatory: Rapid Radiochemical Method for Curium-244 in Air Particulate Filters, Swipes and Soil (EPA)
	Soil & Sediment	100 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar or plastic bag. Borosilicate glass wide-mouth jar may also be used.	Maximum 6 months[4] (Cm-244 half life = 18.1 years)	No preservation required	Qualitative: D3084-05 (ASTM) Confirmatory: Rapid Radiochemical Method for Curium-244 in Air Particulate Filters, Swipes and Soil (EPA)
	Surface Wipes	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Cm-244 half life = 18.1 years)	No preservation required	Qualitative: D3084-05 (ASTM) Confirmatory: Rapid Radiochemical Method for Curium-244 in Air Particulate Filters, Swipes and Soil (EPA)
	Vegetation	1-gallon tightly packed zipper-locked bag or plastic container	Plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures OR wide-mouth plastic container	Maximum 6 months[4] (Cm-244 half life = 18.1 years)	No preservation required	Qualitative: D3084-05 (ASTM) Confirmatory: Am-06-RC (HASL-300)

Packaging Requirements: Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film. Determine the radiation-specific activity of the sample(s) and pack samples outside the contaminated area as described in Footnote (1).
Shipping Label: Shipping labels per requirements of 49 CFR 173. Determine the radiation levels on the surface and at 1 meter from the surface of the package, and label. Refer to information in Footnote (2).

Analyte	Sample Type	Sample Size Collected[3]	Sample Container[4]	Holding Time[4]	Sample Preservation[4]	Analytical Method[5]
Europium-154	Air Filter	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Eu-154 half life = 8.59 years)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Aqueous & Liquid	2 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Eu-154 half life = 8.59 years)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative and Confirmatory: 7120 (SM)
	Drinking Water	2 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Eu-154 half life = 8.59 years)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative and Confirmatory: 901.1 (EPA)
	Soil & Sediment	100 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar or plastic bag. Borosilicate glass wide-mouth jar may also be used.	Maximum 6 months[4] (Eu-154 half life = 8.59 years)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Surface Wipes	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Eu-154 half life = 8.59 years)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Vegetation	1-gallon tightly packed zipper-locked bag or plastic container	Plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures OR wide-mouth plastic container	Maximum 6 months[4] (Eu-154 half life = 8.59 years)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
Indium-111	Air Filter	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (In-111 half life = 2.8 days)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Aqueous & Liquid	2 – 4 L	Borosilicate glass small-mouth bottle	Maximum 6 months[4] (In-111 half life = 2.8 days)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Drinking Water	2 – 4 L	Borosilicate glass small-mouth bottle	Maximum 6 months[4] (In-111 half life = 2.8 days)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative and Confirmatory: 901.1 (EPA)
	Soil & Sediment	100 g	Borosilicate glass wide-mouth jar	Maximum 6 months[4] (In-111 half life = 2.8 days)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Surface Wipes	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (In-111 half life = 2.8 days)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Vegetation	1-gallon tightly packed zipper-locked bag or plastic container	Plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures OR wide-mouth plastic container	Maximum 6 months[4] (In-111 half life = 2.8 days)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)

Packaging Requirements: Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film. Determine the radiation-specific activity of the sample(s) and pack samples outside the contaminated area as described in Footnote (1).
Shipping Label: Shipping labels per requirements of 49 CFR 173. Determine the radiation levels on the surface and at 1 meter from the surface of the package, and label. Refer to information in Footnote (2).

Analyte	Sample Type	Sample Size Collected[3]	Sample Container[4]	Holding Time[4]	Sample Preservation[4]	Analytical Method[5]
Iodine-125	Air Filter	1 charcoal cartridge	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (I-125 half life = 59.4 days)	No preservation required	Qualitative and Confirmatory: Procedure #9[7] (ORISE)
	Aqueous & Liquid	2 – 4 L	Borosilicate glass small-mouth bottle	Maximum 6 months[4] (I-125 half life = 59.4 days)	No preservation required	Qualitative and Confirmatory: Procedure #9 (ORISE)
	Drinking Water	2 – 4 L	Borosilicate glass small-mouth bottle	Maximum 6 months[4] (I-125 half life = 59.4 days)	No preservation required	Qualitative and Confirmatory: Procedure #9 (ORISE)
	Soil & Sediment	100 g	Borosilicate glass wide-mouth jar	Maximum 6 months[4] (I-125 half life = 59.4 days)	No preservation required. I-125 will volatilize with heat; store samples at room temperature if stored before shipping.	Qualitative and Confirmatory: Procedure #9 (ORISE)
	Surface Wipes	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (I-125 half life = 59.4 days)	No preservation required	Qualitative and Confirmatory: Procedure #9 (ORISE)
	Vegetation	1-gallon tightly packed zipper-locked bag or plastic container	Plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures OR wide-mouth plastic container	Maximum 6 months[4] (I-125 half life = 59.4 days)	No preservation required. I-125 will volatilize with heat; store samples at room temperature if stored before shipping.	Qualitative and Confirmatory: Procedure #9 (ORISE)
Iodine-131	Air Filter	Charcoal or silver zeolite cartridge	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (I-131 half life = 8.03 days)	No preservation required	Qualitative and Confirmatory: Ga-01-R[7] (HASL-300)
	Aqueous & Liquid	2 – 4 L	Borosilicate glass small-mouth bottle	Maximum 6 months[4] (I-131 half life = 8.03 days)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Drinking Water	2 – 4 L	Borosilicate glass small-mouth bottle	Maximum 6 months[4] (I-131 half life = 8.03 days)	No preservation required (Sample acidification recommended in Method 901.1 should not be applied to samples collected for analysis of I-131)	Qualitative and Confirmatory: 901.1 (EPA)
	Soil & Sediment	100 g	Borosilicate glass wide-mouth jar	Maximum 6 months[4] (I-131 half life = 8.03 days)	No preservation required. I-131 will volatilize with heat; store samples at room temperature if stored before shipping.	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Surface Wipes	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (I-131 half life = 8.03 days)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Vegetation	1-gallon tightly packed zipper-locked bag or plastic container	Plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures OR wide-mouth plastic container	Maximum 6 months[4] (I-131 half life = 8.03 days)	No preservation required. I-131 will volatilize with heat; store samples at room temperature if stored before shipping.	Qualitative and Confirmatory: Ga-01-R (HASL-300)

Packaging Requirements: Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film. Determine the radiation-specific activity of the sample(s) and pack samples outside the contaminated area as described in Footnote (1).
Shipping Label: Shipping labels per requirements of 49 CFR 173. Determine the radiation levels on the surface and at 1 meter from the surface of the package, and label. Refer to information in Footnote (2).

Analyte	Sample Type	Sample Size Collected[3]	Sample Container[4]	Holding Time[4]	Sample Preservation[4]	Analytical Method[5]
Iridium-192	Air Filter	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Ir-192 half life = 173 days)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Aqueous & Liquid	2 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Ir-192 half life = 173 days)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative and Confirmatory: 7120 (SM)
	Drinking Water	2 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Ir-192 half life = 173 days)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative and Confirmatory: 901.1 (EPA)
	Soil & Sediment	100 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar or plastic bag. Borosilicate glass wide-mouth jar may also be used.	Maximum 6 months[4] (Ir-192 half life = 173 days)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Surface Wipes	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Ir-192 half life = 173 days)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Vegetation	1-gallon tightly packed zipper-locked bag or plastic container	Plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures OR wide-mouth plastic container	Maximum 6 months[4] (Ir-192 half life = 173 days)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
Molybdenum-99	Air Filter	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Mo-99 half life = 65.94 hours)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Aqueous & Liquid	2 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Mo-99 half life = 65.94 hours)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Drinking Water	2 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Mo-99 half life = 65.94 hours)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative and Confirmatory: 901.1 (EPA)
	Soil & Sediment	100 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar or plastic bag. Borosilicate glass wide-mouth jar may also be used.	Maximum 6 months[4] (Mo-99 half life = 65.94 hours)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Surface Wipes	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Mo-99 half life = 65.94 hours)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Vegetation	1-gallon tightly packed zipper-locked bag or plastic container	Plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures OR wide-mouth plastic container	Maximum 6 months[4] (Mo-99 half life = 65.94 hours)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)

Packaging Requirements: Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film. Determine the radiation-specific activity of the sample(s) and pack samples outside the contaminated area as described in Footnote (1).
Shipping Label: Shipping labels per requirements of 49 CFR 173. Determine the radiation levels on the surface and at 1 meter from the surface of the package, and label. Refer to information in Footnote (2).

Analyte	Sample Type	Sample Size Collected[3]	Sample Container[4]	Holding Time[4]	Sample Preservation[4]	Analytical Method[5]
Neptunium-237	Air Filter	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Np-237 half life = 2.14 million years)	No preservation required	Qualitative and Confirmatory: SOP for Actinides in Environmental Matrices (EPA-NAREL)
	Aqueous & Liquid	2 − 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Np-237 half life = 2.14 million years)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative and Confirmatory: SOP for Actinides in Environmental Matrices (EPA-NAREL)
	Drinking Water	2 − 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Np-237 half life = 2.14 million years)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative and Confirmatory: 907.0 (EPA)
	Soil & Sediment	100 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar or plastic bag. Borosilicate glass wide-mouth jar may also be used.	Maximum 6 months[4] (Np-237 half life = 2.14 million years)	No preservation required	Qualitative and Confirmatory: SOP for Actinides in Environmental Matrices (EPA-NAREL)
	Surface Wipes	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Np-237 half life = 2.14 million years)	No preservation required	Qualitative and Confirmatory: SOP for Actinides in Environmental Matrices (EPA-NAREL)
	Vegetation	1-gallon tightly packed zipper-locked bag or plastic container	Plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures OR wide-mouth plastic container	Maximum 6 months[4] (Np-237 half life = 2.14 million years)	No preservation required	Qualitative and Confirmatory: SOP for Actinides in Environmental Matrices (EPA-NAREL)
Neptunium-239	Air Filter	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Np-239 half life = 2.4 days)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Aqueous & Liquid	2 − 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Np-239 half life = 2.4 days)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative and Confirmatory: 7120 (SM)
	Drinking Water	2 − 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Np-239 half life = 2.4 days)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative and Confirmatory: 901.1 (EPA)
	Soil & Sediment	100 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar or plastic bag. Borosilicate glass wide-mouth jar may also be used.	Maximum 6 months[4] (Np-239 half life = 2.4 days)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Surface Wipes	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Np-239 half life = 2.4 days)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Vegetation	1-gallon tightly packed zipper-locked bag or plastic container	Plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures OR wide-mouth plastic container	Maximum 6 months[4] (Np-239 half life = 2.4 days)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)

Packaging Requirements: Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film. Determine the radiation-specific activity of the sample(s) and pack samples outside the contaminated area as described in Footnote (1).
Shipping Label: Shipping labels per requirements of 49 CFR 173. Determine the radiation levels on the surface and at 1 meter from the surface of the package, and label. Refer to information in Footnote (2).

Analyte	Sample Type	Sample Size Collected[3]	Sample Container[4]	Holding Time[4]	Sample Preservation[4]	Analytical Method[5]
Phosphorus-32	Air Filter	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (P-32 half life = 14.26 days)	No preservation required	Qualitative and Confirmatory: RESL P-2 (DOE)
	Aqueous & Liquid	2 − 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (P-32 half life = 14.26 days)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative and Confirmatory: R4-73-014 (EPA)
	Drinking Water	2 − 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (P-32 half life = 14.26 days)	Qualitative: No sample preservation is required if sample is delivered to the laboratory within 3 days of sampling date/time. If the sample is to be held for more than 3 days, add concentrated HNO_3 to achieve a pH < 2. Confirmatory: Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative: Rapid Radiochemical Method for P-32 in Water (EPA) Confirmatory: R4-73-014 (EPA)
	Soil & Sediment	100 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar or plastic bag. Borosilicate glass wide-mouth jar may also be used.	Maximum 6 months[4] (P-32 half life = 14.26 days)	No preservation required	Qualitative and Confirmatory: RESL P-2 (DOE)
	Surface Wipes	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (P-32 half life = 14.26 days)	No preservation required	Qualitative and Confirmatory: RESL P-2 (DOE)
	Vegetation	1-gallon tightly packed zipper-locked bag or plastic container	Plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures OR wide-mouth plastic container	Maximum 6 months[4] (P-32 half life = 14.26 days)	No preservation required	Qualitative and Confirmatory: RESL P-2 (DOE)

Packaging Requirements: Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film. Determine the radiation-specific activity of the sample(s) and pack samples outside the contaminated area as described in Footnote (1).
Shipping Label: Shipping labels per requirements of 49 CFR 173. Determine the radiation levels on the surface and at 1 meter from the surface of the package, and label. Refer to information in Footnote (2).

Analyte	Sample Type	Sample Size Collected[3]	Sample Container[4]	Holding Time[4]	Sample Preservation[4]	Analytical Method[5]
Plutonium-238 Plutonium-239	Air Filter	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Pu-238 half life = 87.7 years) (Pu-239 half life = 24,100 years)	No preservation required	Qualitative: Rapid Methods for Acid or Fusion Digestion (EPA) Confirmatory: SOP for Actinides in Environmental Matrices (EPA-NAREL)
	Aqueous & Liquid	2 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Pu-238 half life = 87.7 years) (Pu-239 half life = 24,100 years)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative: D3084-05 (ASTM) Confirmatory: SOP for Actinides in Environmental Matrices (EPA-NAREL)
	Drinking Water	2 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Pu-238 half life = 87.7 years) (Pu-239 half life = 24,100 years)	Qualitative: No sample preservation is required if sample is delivered to the laboratory within 3 days of collection. If the sample is to be held for more than 3 days, add concentrated HNO_3 to achieve a pH < 2. Confirmatory: Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative: Rapid Radiochemical Method for Pu (EPA) Confirmatory: EMSL-33 (EPA)
	Soil & Sediment	100 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar or plastic bag. Borosilicate glass wide-mouth jar may also be used.	Maximum 6 months[4] (Pu-238 half life = 87.7 years) (Pu-239 half life = 24,100 years)	No preservation required	Qualitative: Rapid Method for Fusion of Soil and Soil-Related Matrices (EPA) Confirmatory: SOP for Actinides in Environmental Matrices (EPA-NAREL)
	Surface Wipes	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Pu-238 half life = 87.7 years) (Pu-239 half life = 24,100 years)	No preservation required	Qualitative: Rapid Methods for Acid or Fusion Digestion (EPA) Confirmatory: SOP for Actinides in Environmental Matrices (EPA-NAREL)
	Vegetation	1-gallon tightly packed zipper-locked bag or plastic container	Plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures OR wide-mouth plastic container	Maximum 6 months[4] (Pu-238 half life = 87.7 years) (Pu-239 half life = 24,100 years)	No preservation required	Qualitative: Actinides and Sr-89/90 in Vegetation (DOE SRS) Confirmatory: Am-06-RC (HASL-300)

Packaging Requirements: Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film. Determine the radiation-specific activity of the sample(s) and pack samples outside the contaminated area as described in Footnote (1).
Shipping Label: Shipping labels per requirements of 49 CFR 173. Determine the radiation levels on the surface and at 1 meter from the surface of the package, and label. Refer to information in Footnote (2).

Analyte	Sample Type	Sample Size Collected[3]	Sample Container[4]	Holding Time[4]	Sample Preservation[4]	Analytical Method[5]
Polonium-210	Air Filter	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Po-210 half life = 138 days)	No preservation required	Qualitative and Confirmatory: Method 111 (EPA)
	Aqueous & Liquid	2 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Po-210 half life = 138 days)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative and Confirmatory: Po-02-RC (HASL-300)
	Drinking Water	2 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Po-210 half life = 138 days)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative and Confirmatory: Po-02-RC (HASL-300)
	Soil & Sediment	100 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar or plastic bag. Borosilicate glass wide-mouth jar may also be used.	Maximum 6 months[4] (Po-210 half life = 138 days)	No preservation required	Qualitative and Confirmatory: Po-02-RC (HASL-300)
	Surface Wipes	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Po-210 half life = 138 days)	No preservation required	Qualitative and Confirmatory: Method 111 (EPA)
	Vegetation	1-gallon tightly packed zipper-locked bag or plastic container	Plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures OR wide-mouth plastic container	Maximum 6 months[4] (Po-210 half life = 138 days)	No preservation required	Qualitative and Confirmatory: Po-02-RC (HASL-300)
Radium-223	Air Filter	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Ra-223 half life = 11.4 days)	No preservation required	Qualitative and Confirmatory: Rapid Radiochemical Method for Ra-226 (EPA)
	Aqueous & Liquid	2 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Ra-223 half life = 11.4 days)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative and Confirmatory: Rapid Radiochemical Method for Ra-226 (EPA)
	Drinking Water	2 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Ra-223 half life = 11.4 days)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative and Confirmatory: Rapid Radiochemical Method for Ra-226 (EPA)
	Soil & Sediment	100 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar or plastic bag. Borosilicate glass wide-mouth jar may also be used.	Maximum 6 months[4] (Ra-223 half life = 11.4 days)	No preservation required	Qualitative and Confirmatory: Rapid Radiochemical Method for Ra-226 (EPA)
	Surface Wipes	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Ra-223 half life = 11.4 days)	No preservation required	Qualitative and Confirmatory: Rapid Radiochemical Method for Ra-226 (EPA)
	Vegetation	1-gallon tightly packed zipper-locked bag or plastic container	Plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures OR wide-mouth plastic container	Maximum 6 months[4] (Ra-223 half life = 11.4 days)	No preservation required	Qualitative and Confirmatory: Rapid Radiochemical Method for Ra-226 (EPA)

Packaging Requirements: Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film. Determine the radiation-specific activity of the sample(s) and pack samples outside the contaminated area as described in Footnote (1).
Shipping Label: Shipping labels per requirements of 49 CFR 173. Determine the radiation levels on the surface and at 1 meter from the surface of the package, and label. Refer to information in Footnote (2).

Analyte	Sample Type	Sample Size Collected[3]	Sample Container[4]	Holding Time[4]	Sample Preservation[4]	Analytical Method[5]
Radium-226	Air Filter	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Ra-226 half life = 1,600 years)	No preservation required	Qualitative: Rapid Methods for Acid or Fusion Digestion (EPA) Confirmatory: Rapid Radiochemical Method for Radium-226 in Building Materials (EPA)
	Aqueous & Liquid	2 − 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Ra-226 half life = 1,600 years)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative: 7500-Ra B (SM) Confirmatory: 7500-Ra C (SM)
	Drinking Water	2 − 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Ra-226 half life = 1,600 years)	Qualitative: No sample preservation is required if sample is delivered to the laboratory within 3 days of collection. If the sample is to be held for more than 3 days, add concentrated HNO_3 to achieve a pH < 2. Confirmatory: Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative: Rapid Radiochemical Methods for Ra-226 (EPA) Confirmatory: 903.1 (EPA)
	Soil & Sediment	100 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar or plastic bag. Borosilicate glass wide-mouth jar may also be used.	Maximum 6 months[4] (Ra-226 half life = 1,600 years)	No preservation required	Qualitative: Rapid Method for Radium in Soil (EPA) Confirmatory: AP7 (ORISE)
	Surface Wipes	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Ra-226 half life = 1,600 years)	No preservation required	Qualitative: Rapid Methods for Acid or Fusion Digestion (EPA) Confirmatory: Rapid Radiochemical Method for Radium-226 in Building Materials (EPA)
	Vegetation	1-gallon tightly packed zipper-locked bag or plastic container	Plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures OR wide-mouth plastic container	Maximum 6 months[4] (Ra-226 half life = 1,600 years)	No preservation required	Qualitative and Confirmatory: Ra-03-RC (HASL-300)

Packaging Requirements: Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film. Determine the radiation-specific activity of the sample(s) and pack samples outside the contaminated area as described in Footnote (1).
Shipping Label: Shipping labels per requirements of 49 CFR 173. Determine the radiation levels on the surface and at 1 meter from the surface of the package, and label. Refer to information in Footnote (2).

Analyte	Sample Type	Sample Size Collected[3]	Sample Container[4]	Holding Time[4]	Sample Preservation[4]	Analytical Method[5]
Rhenium-188	Air Filter	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months (Re-188 half life = 16.9 hours)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Aqueous & Liquid	2 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months (Re-188 half life = 16.9 hours)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Drinking Water	2 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months (Re-188 half life = 16.9 hours)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative and Confirmatory: 901.1 (EPA)
	Soil & Sediment	100 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar or plastic bag. Borosilicate glass wide-mouth jar may also be used.	Maximum 6 months (Re-188 half life = 16.9 hours)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Surface Wipes	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months (Re-188 half life = 16.9 hours)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Vegetation	1-gallon tightly packed zipper-locked bag or plastic container	Plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures OR wide-mouth plastic container	Maximum 6 months (Re-188 half life = 16.9 hours)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
Rubidium-82	Air Filter	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Rb-82 half life = 75 seconds)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Aqueous & Liquid	2 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Rb-82 half life = 75 seconds)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Drinking Water	2 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Rb-82 half life = 75 seconds)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative and Confirmatory: 901.1 (EPA)
	Soil & Sediment	100 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar or plastic bag. Borosilicate glass wide-mouth jar may also be used.	Maximum 6 months[4] (Rb-82 half life = 75 seconds)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Surface Wipes	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Rb-82 half life = 75 seconds)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Vegetation	1-gallon tightly packed zipper-locked bag or plastic container	Plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures OR wide-mouth plastic container	Maximum 6 months[4] (Rb-82 half life = 75 seconds)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)

Packaging Requirements: Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film. Determine the radiation-specific activity of the sample(s) and pack samples outside the contaminated area as described in Footnote (1).
Shipping Label: Shipping labels per requirements of 49 CFR 173. Determine the radiation levels on the surface and at 1 meter from the surface of the package, and label. Refer to information in Footnote (2).

Analyte	Sample Type	Sample Size Collected[3]	Sample Container[4]	Holding Time[4]	Sample Preservation[4]	Analytical Method[5]
Ruthenium-103	Air Filter	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Ru-103 half life = 39.3 days)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Aqueous & Liquid	2 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Ru-103 half life = 39.3 days)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative and Confirmatory: 7120 (SM)
	Drinking Water	2 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Ru-103 half life = 39.3 days)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative and Confirmatory: 901.1 (EPA)
	Soil & Sediment	100 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar or plastic bag. Borosilicate glass wide-mouth jar may also be used.	Maximum 6 months[4] (Ru-103 half life = 39.3 days)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Surface Wipes	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Ru-103 half life = 39.3 days)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Vegetation	1-gallon tightly packed zipper-locked bag or plastic container	Plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures OR wide-mouth plastic container	Maximum 6 months[4] (Ru-103 half life = 39.3 days)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
Ruthenium-106	Air Filter	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Ru-106 half life = 374 days)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Aqueous & Liquid	2 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Ru-106 half life = 374 days)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative and Confirmatory: 7120 (SM)
	Drinking Water	2 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Ru-106 half life = 374 days)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative and Confirmatory: 901.1 (EPA)
	Soil & Sediment	100 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar or plastic bag. Borosilicate glass wide-mouth jar may also be used.	Maximum 6 months[4] (Ru-106 half life = 374 days)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Surface Wipes	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Ru-106 half life = 374 days)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Vegetation	1-gallon tightly packed zipper-locked bag or plastic container	Plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures OR wide-mouth plastic container	Maximum 6 months[4] (Ru-106 half life = 374 days)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)

Packaging Requirements: Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film. Determine the radiation-specific activity of the sample(s) and pack samples outside the contaminated area as described in Footnote (1).
Shipping Label: Shipping labels per requirements of 49 CFR 173. Determine the radiation levels on the surface and at 1 meter from the surface of the package, and label. Refer to information in Footnote (2).

Analyte	Sample Type	Sample Size Collected[3]	Sample Container[4]	Holding Time[4]	Sample Preservation[4]	Analytical Method[5]
Selenium-75	Air Filter	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Se-75 half life = 120 days)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Aqueous & Liquid	2 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Se-75 half life = 120 days)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative and Confirmatory: 7120 (SM)
	Drinking Water	2 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Se-75 half life = 120 days)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative and Confirmatory: 901.1 (EPA)
	Soil & Sediment	100 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar or plastic bag. Borosilicate glass wide-mouth jar may also be used.	Maximum 6 months[4] (Se-75 half life = 120 days)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Surface Wipes	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Se-75 half life = 120 days)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Vegetation	1-gallon tightly packed zipper-locked bag or plastic container	Plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures OR wide-mouth plastic container	Maximum 6 months[4] (Se-75 half life = 120 days)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
Strontium-89	Air Filter	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Sr-89 half life = 50.53 days)	No preservation required	Qualitative and Confirmatory: Strontium in Food and Bioenvironmental Samples (EPA)
	Aqueous & Liquid	2 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Sr-89 half life = 50.53 days)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative and Confirmatory: 905.0 (EPA)
	Drinking Water	2 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Sr-89 half life = 50.53 days)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative and Confirmatory: 905.0 (EPA)
	Soil & Sediment	100 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar or plastic bag. Borosilicate glass wide-mouth jar may also be used.	Maximum 6 months[4] (Sr-89 half life = 50.53 days)	No preservation required	Qualitative: Actinides and Sr-89/90 in Soil Samples (DOE SRS) Confirmatory: Strontium in Food and Bioenvironmental Samples (EPA)
	Surface Wipes	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Sr-89 half life = 50.53 days)	No preservation required	Qualitative and Confirmatory: Strontium in Food and Bioenvironmental Samples (EPA)
	Vegetation	1-gallon tightly packed zipper-locked bag or plastic container	Plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures OR wide-mouth plastic container	Maximum 6 months[4] (Sr-89 half life = 50.53 days)	No preservation required	Qualitative: Actinides and Sr-89/90 in Soil Samples (DOE SRS) Confirmatory: Strontium in Food and Bioenvironmental Samples (EPA)

Packaging Requirements: Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film. Determine the radiation-specific activity of the sample(s) and pack samples outside the contaminated area as described in Footnote (1).
Shipping Label: Shipping labels per requirements of 49 CFR 173. Determine the radiation levels on the surface and at 1 meter from the surface of the package, and label. Refer to information in Footnote (2).

Analyte	Sample Type	Sample Size Collected[3]	Sample Container[4]	Holding Time[4]	Sample Preservation[4]	Analytical Method[5]
Strontium-90	Air Filter	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Sr-90 half life = 28.8 years)	No preservation required	Qualitative: Rapid Methods for Acid or Fusion Digestion (EPA) Confirmatory: Sr-03-RC (HASL-300)
	Aqueous & Liquid	2 − 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Sr-90 half life = 28.8 years)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative and Confirmatory: D5811-08 (ASTM)
	Drinking Water	2 − 4 L	Samples should be collected in 1-L plastic containers	Maximum 6 months[4] (Sr-90 half life = 28.8 years)	Qualitative: No sample preservation is required if sample is delivered to the laboratory within 3 days of sampling date/time. If the sample is to be held for more than 3 days, add concentrated HNO_3 to achieve a pH < 2. Confirmatory: Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative: Rapid Radiochemical Methods for Sr-90 (EPA) Confirmatory: 905.0 (EPA)
	Soil & Sediment	100 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar or plastic bag. Borosilicate glass wide-mouth jar may also be used.	Maximum 6 months[4] (Sr-90 half life = 28.8 years)	No preservation required	Qualitative: Rapid Method for Sodium Carbonate Fusion of Soil and Soil-Related Matrices (EPA) Confirmatory: Sr-03-RC (HASL-300)
	Surface Wipes	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Sr-90 half life = 28.8 years)	No preservation required	Qualitative: Rapid Methods for Acid or Fusion Digestion (EPA) Confirmatory: Sr-03-RC (HASL-300)
	Vegetation	1-gallon tightly packed zipper-locked bag or plastic container	Plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures OR wide-mouth plastic container	Maximum 6 months[4] (Sr-90 half life = 28.8 years)	No preservation required	Qualitative: Actinides and Sr-89/90 in Vegetation (DOE SRS) Confirmatory: Sr-03-RC (HASL-300)

Packaging Requirements: Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film. Determine the radiation-specific activity of the sample(s) and pack samples outside the contaminated area as described in Footnote (1).
Shipping Label: Shipping labels per requirements of 49 CFR 173. Determine the radiation levels on the surface and at 1 meter from the surface of the package, and label. Refer to information in Footnote (2).

Analyte	Sample Type	Sample Size Collected[3]	Sample Container[4]	Holding Time[4]	Sample Preservation[4]	Analytical Method[5]
Technetium-99	Air Filter	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Tc-99 half life = 211,000 years)	No preservation required	Qualitative and Confirmatory: AP5 (ORISE)
	Aqueous & Liquid	2 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Tc-99 half life = 211,000 years)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative and Confirmatory: D7168-05 (ASTM)
	Drinking Water	2 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Tc-99 half life = 211,000 years)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative and Confirmatory: Tc-02-RC (HASL-300)
	Soil & Sediment	100 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar or plastic bag. Borosilicate glass wide-mouth jar may also be used.	Maximum 6 months[4] (Tc-99 half life = 211,000 years)	No preservation required	Qualitative and Confirmatory: AP5 (ORISE)
	Surface Wipes	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Tc-99 half life = 211,000 years)	No preservation required	Qualitative and Confirmatory: AP5 (ORISE)
	Vegetation	1-gallon tightly packed zipper-locked bag or plastic container	Plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures OR wide-mouth plastic container	Maximum 6 months[4] (Tc-99 half life = 211,000 years)	No preservation required	Qualitative: AP5 (ORISE) Confirmatory: Tc-01-RC (HASL-300)
Technetium-99m	Air Filter	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Tc-99m half life = 6 hours)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Aqueous & Liquid	2 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Tc-99m half life = 6 hours)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Drinking Water	2 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Tc-99m half life = 6 hours)	No preservation required	Qualitative and Confirmatory: 901.1 (EPA)
	Soil & Sediment	100 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar or plastic bag. Borosilicate glass wide-mouth jar may also be used.	Maximum 6 months[4] (Tc-99m half life = 6 hours)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Surface Wipes	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Tc-99m half life = 6 hours)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)
	Vegetation	1-gallon tightly packed zipper-locked bag or plastic container	Plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures OR wide-mouth plastic container	Maximum 6 months[4] (Tc-99m half life = 6 hours)	No preservation required	Qualitative and Confirmatory: Ga-01-R (HASL-300)

Packaging Requirements: Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film. Determine the radiation-specific activity of the sample(s) and pack samples outside the contaminated area as described in Footnote (1).
Shipping Label: Shipping labels per requirements of 49 CFR 173. Determine the radiation levels on the surface and at 1 meter from the surface of the package, and label. Refer to information in Footnote (2).

Analyte	Sample Type	Sample Size Collected[3]	Sample Container[4]	Holding Time[4]	Sample Preservation[4]	Analytical Method[5]
Thorium-227 Thorium-228 Thorium-230 Thorium-232	Air Filter	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Th-227 half life = 18.7 days) (Th-228 half life = 1.9 years) (Th-230 half life = 7.5 years) (Th-232 half life = 1.4 x 1010 years)	No preservation required	Qualitative and Confirmatory: SOP for Actinides in Environmental Matrices (EPA-NAREL)
	Aqueous & Liquid	2 − 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Th-227 half life = 18.7 days) (Th-228 half life = 1.9 years) (Th-230 half life = 7.5 years) (Th-232 half life = 1.4 x 1010 years)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative and Confirmatory: SOP for Actinides in Environmental Matrices (EPA-NAREL)
	Drinking Water	2 − 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] (Th-227 half life = 18.7 days) (Th-228 half life = 1.9 years) (Th-230 half life = 7.5 years) (Th-232 half life = 1.4 x 1010 years)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative and Confirmatory: 907.0 (EPA)
	Soil & Sediment	100 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar or plastic bag. Borosilicate glass wide-mouth jar may also be used.	Maximum 6 months[4] (Th-227 half life = 18.7 days) (Th-228 half life = 1.9 years) (Th-230 half life = 7.5 years) (Th-232 half life = 1.4 x 1010 years)	No preservation required	Qualitative and Confirmatory: SOP for Actinides in Environmental Matrices (EPA-NAREL)
	Surface Wipes	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (Th-227 half life = 18.7 days) (Th-228 half life = 1.9 years) (Th-230 half life = 7.5 years) (Th-232 half life = 1.4 x 1010 years)	No preservation required	Qualitative and Confirmatory: SOP for Actinides in Environmental Matrices (EPA-NAREL)
	Vegetation	1-gallon tightly packed zipper-locked bag or plastic container	Plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures OR wide-mouth plastic container	Maximum 6 months[4] (Th-227 half life = 18.7 days) (Th-228 half life = 1.9 years) (Th-230 half life = 7.5 years) (Th-232 half life = 1.4 x 1010 years)	No preservation required	Qualitative and Confirmatory: SOP for Actinides in Environmental Matrices (EPA-NAREL)

Packaging Requirements: Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film. Determine the radiation-specific activity of the sample(s) and pack samples outside the contaminated area as described in Footnote (1).
Shipping Label: Shipping labels per requirements of 49 CFR 173. Determine the radiation levels on the surface and at 1 meter from the surface of the package, and label. Refer to information in Footnote (2).

Analyte	Sample Type	Sample Size Collected[3]	Sample Container[4]	Holding Time[4]	Sample Preservation[4]	Analytical Method[5]
Tritium (Hydrogen-3)	Air Filter	For the purposes of this document, this analyte is not considered to be a concern in this sample type				
	Aqueous & Liquid	2 – 4 L	Borosilicate glass small-mouth bottle	Maximum 6 months[4] (^{3}H half life = 12.32 years)	No preservation required	Qualitative and Confirmatory: 906.0 (EPA)
	Drinking Water	2 – 4 L	Borosilicate glass small-mouth bottle	Maximum 6 months[4] (^{3}H half life = 12.32 years)	No preservation required	Qualitative and Confirmatory: 906.0 (EPA)
	Soil & Sediment	100 g	Borosilicate glass wide-mouth jar	Maximum 6 months[4] (^{3}H half life = 12.32 years)	No preservation required. Tritium will volatilize with heat; store samples at room temperature if stored before shipping.	Qualitative and Confirmatory: AP2 (ORISE)
	Surface Wipes	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] (^{3}H half life = 12.32 years)	No preservation required. Tritium will volatilize with heat; do not dry sample before analysis.	Qualitative and Confirmatory: AP2 (ORISE)
	Vegetation	1-gallon tightly packed zipper-locked bag or plastic container	Plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures OR wide-mouth plastic container	Maximum 6 months[4] (^{3}H half life = 12.32 years)	No preservation required. Tritium will volatilize with heat; do not dry sample prior to analysis.	Qualitative and Confirmatory: AP2 (ORISE)

Packaging Requirements: Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film. Determine the radiation-specific activity of the sample(s) and pack samples outside the contaminated area as described in Footnote (1).
Shipping Label: Shipping labels per requirements of 49 CFR 173. Determine the radiation levels on the surface and at 1 meter from the surface of the package, and label. Refer to information in Footnote (2).

Analyte	Sample Type	Sample Size Collected[3]	Sample Container[4]	Holding Time[4]	Sample Preservation[4]	Analytical Method[5]
Uranium-234 Uranium-235 Uranium-238	Air Filter	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] • (U-234 half life = 244,000 years) • (U-235 half life = 700 x 10^6 years) • (U-238 half life = 4.47 x 10^9 years)	No preservation required	Qualitative: Rapid Methods for Acid or Fusion Digestion (EPA) Confirmatory: SOP for Actinides in Environmental Matrices (EPA-NAREL)
	Aqueous & Liquid	2 − 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] • (U-234 half life = 244,000 years) • (U-235 half life = 700 x 10^6 years) • (U-238 half life = 4.47 x 10^9 years)	Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative: 7500-U B (SM) Confirmatory: 7500-U C (SM)
	Drinking Water	2 − 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months[4] • (U-234 half life = 244,000 years) • (U-235 half life = 700 x 10^6 years) • (U-238 half life = 4.47 x 10^9 years)	Qualitative: No sample preservation is required if sample is delivered to the laboratory within 3 days of collection. If the sample is to be held for more than 3 days, add concentrated HNO_3 to achieve a pH < 2. Confirmatory: Preserve sample with HNO_3 or HCl to pH < 2 [6]	Qualitative: Rapid Radiochemical Method for U (EPA) Confirmatory: D3972-02 (ASTM)
	Soil & Sediment	100 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar or plastic bag. Borosilicate glass wide-mouth jar may also be used.	Maximum 6 months[4] • (U-234 half life = 244,000 years) • (U-235 half life = 700 x 10^6 years) • (U-238 half life = 4.47 x 10^9 years)	No preservation required	Qualitative: Rapid Method for Fusion of Soil and Soil-Related Matrices (EPA) Confirmatory: SOP for Actinides in Environmental Matrices (EPA-NAREL)
	Surface Wipes	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months[4] • (U-234 half life = 244,000 years) • (U-235 half life = 700 x 10^6 years) • (U-238 half life = 4.47 x 10^9 years)	No preservation required	Qualitative: Rapid Methods for Acid or Fusion Digestion (EPA) Confirmatory: SOP for Actinides in Environmental Matrices (EPA-NAREL)
	Vegetation	1-gallon tightly packed zipper-locked bag or plastic container	Plastic (polypropylene or polyethylene) bag with zipper lock and durability to resist punctures OR wide-mouth plastic container	Maximum 6 months[4] • (U-234 half life = 244,000 years) • (U-235 half life = 700 x 10^6 years) • (U-238 half life = 4.47 x 10^9 years)	No preservation required	Qualitative: Actinides and Sr-89/90 in Vegetation (DOE SRS) Confirmatory: U-02-RC (HASL-300)

Footnotes:

(1) Sample transport containers are packed outside the contaminated area. Samples must be packed in a manner that protects the integrity of the containers. Samples should be surrounded by shock absorbing and liquid absorbent packing materials (49 CFR 173.24 and 173.453). Check the radiation-specific activity from the packaged samples (49 CFR 173.403).

(2) Although the package required for transporting radioactive material is based on the activity INSIDE the package, the label required on the transport package is based on the radiation hazard OUTSIDE the package. Radioactive material is the only hazardous material that has three possible labels, depending on the relative radiation levels external to the package. Labels for radioactive material also require a Transportation Index (TI) number which indicates the highest radiation level measured at 1 meter from the surface of the package. The three possible labels are commonly called White 1, Yellow 2, and Yellow 3, referring to the color of the label and the number prominently displayed. The specific label required (White 1, Yellow 2, or Yellow 3) is based on the limits specified in 49 CFR 172.403.

(3) Sample sizes are provided for guidance, and may vary depending on the specific contamination incident, data quality objectives and requirements, and laboratory radiochemistry license considerations. With the exception of total gamma, the sample sizes listed are based on the amount needed to support analyses addressing all the radioisotopes listed in this attachment; the sample size listed for total gamma is based on the amount needed to determine only total gamma radiation.

(4) Sample container, holding times, preservation, and sample preparation information has been derived from requirements stated in the analytical methods, documents cited under "Analytical Method" or in Section 7.0 of this document, or best professional judgment. Holding times can be significantly less than 6 months, depending on the specific isotope targeted and its concentration in the sample.

(5) Methods listed in this column can be located using U.S. Environmental Protection Agency, National Homeland Security Research Center's (NHSRC) *Selected Analytical Methods for Environmental Remediation and Recovery (SAM) 2017* (https://www.epa.gov/homeland-security-research/sam). The SAM document is intended to be used concurrently with this Sample Collection Information Document. Full citations for references not cited and/or accessed through the SAM website are provided in Section 7.0 of this document.

(6) If dissolved components are to be determined, samples requiring preservation must be filtered prior to preservation. Drinking water samples can be preserved in the laboratory within 5 days of collection, if sample collectors are not able to preserve the samples in the field

(7) This procedure should be used only for filters specifically designed for iodine.

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Attachment B2

Sample Collection Information for the Outdoor Building and Infrastructure Materials, Radiochemical Analytes and Methods Listed in SAM 2017

[Note: The acronyms and abbreviations used in this attachment are listed and defined in the beginning of the report.]

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Attachment B2: Sample Collection Information for the Outdoor Building and Infrastructure Materials, Radiochemical Analytes and Methods Listed in SAM 2017

Packaging Requirements: Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film. Determine the radiation-specific activity of the sample(s) and pack samples outside the contaminated area as described in Footnote (1).
Shipping Label: Shipping labels per requirements of 49 CFR 173. Determine the radiation levels on the surface and at 1 meter from the surface of the package, and label. Refer to information in Footnote (2).

Analyte	Sample Type	Sample Size Collected[3]	Sample Container[4]	Holding Time[4]	Sample Preservative[4]	Sample Preparation Methods[5]	Analytical Methods[5]
Americium-241	Asphalt shingles	250 grams	Chips, rubble, particulates: 250-mL or larger plastic jars or sample bottles Cores, cuttings, bulk materials: Large zip-locking or plastic bag with ties, and/or box (steel, wood or fiberboard)	Maximum 6 months (Am-241 half life = 432 years)	No preservation required	• Rapid Method for Sodium Hydroxide Fusion of Asphalt Matrices Prior to Americium, Plutonium, Strontium, Radium, and Uranium Analyses • Rapid Method for Sodium Hydroxide Fusion of Asphalt Roofing Material Matrices Prior to Americium, Plutonium, Strontium, Radium, and Uranium Analyses	• EPA NAREL - Rapid Radiochemical Method for Americium-241 in Building Materials
	Asphalt paving material	25 grams			No preservation required		
	Concrete	25 grams			No preservation required	• Rapid Method for Sodium Hydroxide Fusion of Concrete and Brick Matrices Prior to Americium, Plutonium, Strontium, Radium, and Uranium Analyses for Environmental Remediation Following Radiological Incidents	
	Brick	25 grams			No preservation required		
	Granite	25 grams			No preservation required		
	Stucco	25 grams			No preservation required		
Plutonium-238 Plutonium-239	Asphalt shingles	250 grams	Chips, rubble, particulates: 250-mL or larger plastic jars or sample bottles Cores, cuttings, bulk materials: Large zip-locking or plastic bag with ties, and/or box (steel, wood or fiberboard)	Maximum 6 months (Pu-238 half life = 87.7 years) (Pu-239 half life = 24,100 years)	No preservation required	• Rapid Method for Sodium Hydroxide Fusion of Asphalt Matrices Prior to Americium, Plutonium, Strontium, Radium, and Uranium Analyses • Rapid Method for Sodium Hydroxide Fusion of Asphalt Roofing Material Matrices Prior to Americium, Plutonium, Strontium, Radium, and Uranium Analyses	• EPA NAREL - Rapid Radiochemical Method for Plutonium-238 and Plutonium-239/240 in Building Materials
	Asphalt	25 grams			No preservation required		
	Concrete	25 grams			No preservation required	• Rapid Method for Sodium Hydroxide Fusion of Concrete and Brick Matrices Prior to Americium, Plutonium, Strontium, Radium, and Uranium Analyses for Environmental Remediation Following Radiological Incidents	
	Brick	25 grams			No preservation required		
	Granite	25 grams			No preservation required		
	Stucco	25 grams			No preservation required		

Packaging Requirements: Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film. Determine the radiation-specific activity of the sample(s) and pack samples outside the contaminated area as described in Footnote (1).
Shipping Label: Shipping labels per requirements of 49 CFR 173. Determine the radiation levels on the surface and at 1 meter from the surface of the package, and label. Refer to information in Footnote (2).

Analyte	Sample Type	Sample Size Collected[3]	Sample Container[4]	Holding Time[4]	Sample Preservative[4]	Sample Preparation Methods[5]	Analytical Methods[5]
Radium-226	Asphalt shingles	250 grams	Chips, rubble, particulates: 250-mL or larger plastic jars or sample bottles Cores, cuttings, bulk materials: Large zip-locking or plastic bag with ties, and/or box (steel, wood or fiberboard)	Maximum 6 months (Ra-226 half life = 1,600 years)	No preservation required	• Rapid Method for Sodium Hydroxide Fusion of Asphalt Matrices Prior to Americium, Plutonium, Strontium, Radium, and Uranium Analyses	• EPA NAREL - Radium-226 in Bitumen, Aggregate, Stone or other Solid Samples: Rapid Method for High-Activity Samples
	Asphalt	25 grams			No preservation required	• Rapid Method for Sodium Hydroxide Fusion of Asphalt Roofing Material Matrices Prior to Americium, Plutonium, Strontium, Radium, and Uranium Analyses	• EPA NAREL - Rapid Radiochemical Method for Radium-226 in Building Materials for Environmental Remediation Following Radiological Incidents
	Concrete	25 grams			No preservation required	• Rapid Method for Sodium Hydroxide Fusion of Concrete and Brick Matrices Prior to Americium, Plutonium, Strontium, Radium, and Uranium Analyses for Environmental Remediation Following Radiological Incidents	• EPA NAREL - Rapid Radiochemical Method for Radium-226 in Building Materials for Environmental Remediation Following Radiological Incidents
	Brick	25 grams			No preservation required		
	Granite	25 grams			No preservation required		
	Stucco	25 grams			No preservation required		
Stontium-90	Asphalt shingles	250 grams	Chips, rubble, particulates: 250-mL or larger plastic jars or sample bottles Cores, cuttings, bulk materials: Large zip-locking or plastic bag with ties, and/or box (steel, wood or fiberboard)	Maximum 6 months (Sr-90 half life = 28.8 years)	No preservation required	• Rapid Method for Sodium Hydroxide Fusion of Asphalt Matrices Prior to Americium, Plutonium, Strontium, Radium, and Uranium Analyses	• EPA NAREL - Rapid Radiochemical Method for Strontium-90 (Sr-90) in Building Materials for Environmental Remediation Following Radiological Incidents
	Asphalt	25 grams			No preservation required	• Rapid Method for Sodium Hydroxide Fusion of Asphalt Roofing Material Matrices Prior to Americium, Plutonium, Strontium, Radium, and Uranium Analyses	
	Concrete	25 grams			No preservation required	• Rapid Method for Sodium Hydroxide Fusion of Concrete and Brick Matrices Prior to Americium, Plutonium, Strontium, Radium, and Uranium Analyses for Environmental Remediation Following Radiological Incidents	
	Brick	25 grams			No preservation required		
	Granite	25 grams			No preservation required		
	Stucco	25 grams			No preservation required		

Packaging Requirements: Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film. Determine the radiation-specific activity of the sample(s) and pack samples outside the contaminated area as described in Footnote (1).
Shipping Label: Shipping labels per requirements of 49 CFR 173. Determine the radiation levels on the surface and at 1 meter from the surface of the package, and label. Refer to information in Footnote (2).

Analyte	Sample Type	Sample Size Collected[3]	Sample Container[4]	Holding Time[4]	Sample Preservative[4]	Sample Preparation Methods[5]	Analytical Methods[5]
Uranium-234 Uranium-235 Uranium-238	Asphalt shingles	250 grams	Chips, rubble, particulates: 250-mL or larger plastic jars or sample bottles Cores, cuttings, bulk materials: Large zip-locking or plastic bag with ties, and/or box (steel, wood or fiberboard)	Maximum 6 months (U-234 half life = 244,000 years) (U-235 half life = 700 million years) (U-238 half life = 4.47 billion years)	No preservation required	• Rapid Method for Sodium Hydroxide Fusion of Asphalt Matrices Prior to Americium, Plutonium, Strontium, Radium, and Uranium Analyses	• EPA NAREL - Rapid Radiochemical Method for Isotopic Uranium in Building Materials for Environmental Remediation Following Radiological Incidents
	Asphalt	25 grams			No preservation required	• Rapid Method for Sodium Hydroxide Fusion of Asphalt Roofing Material Matrices Prior to Americium, Plutonium, Strontium, Radium, and Uranium Analyses	
	Concrete	25 grams			No preservation required	• Rapid Method for Sodium Hydroxide Fusion of Concrete and Brick Matrices Prior to Americium, Plutonium, Strontium, Radium, and Uranium Analyses for Environmental Remediation Following Radiological Incidents	
	Brick	25 grams			No preservation required		
	Granite	25 grams			No preservation required		
	Stucco	25 grams			No preservation required		

Footnotes:

(1) Sample transport containers are packed outside the contaminated area. Samples must be packed in a manner that protects the integrity of the sample containers. Samples should be surrounded by shock absorbing and liquid absorbent packing materials (49 CFR 173.24 and 173.453). Check the radiation-specific activity from the packaged samples (49 CFR 173.403).

(2) Although the package required for transporting radioactive material is based on the activity INSIDE the package, the label required on the transport package is based on the radiation hazard OUTSIDE the package. Radioactive material is the only hazardous material that has three possible labels, depending on the relative radiation levels external to the package. Labels for radioactive material also require a Transportation Index (TI) number which indicates the highest radiation level measured at 1 meter from the surface of the package. The three possible labels are commonly called White 1, Yellow 2, and Yellow 3, referring to the color of the label and the number prominently displayed. The specific label required (White 1, Yellow 2, or Yellow 3) is based on the limits specified in 49 CFR 172.403.

(3) Sample sizes are provided for guidance, and may vary depending on the specific contamination incident, data quality objectives and requirements, and laboratory radiochemistry license considerations. The sample sizes listed are based on the amount needed to support analyses addressing all the radioisotopes listed in this attachment.

(4) Sample container, holding times, preservation, and sample preparation information has been derived from requirements stated in the analytical methods, documents cited under "Analytical Method" or in Section 7.0 of this document, or best professional judgment. Holding times can be significantly less than 6 months, depending on the specific isotope targeted and its concentration in the sample.

(5) Methods listed in this column can be located using U.S. Environmental Protection Agency, National Homeland Security Research Center's (NHSRC) *Selected Analytical Methods for Environmental Remediation and Recovery (SAM) 2017* (https://www.epa.gov/homeland-security-research/sam). The Selected Analytical Methods document is intended to be used concurrently with this Sample Collection Information Document. Full citations for references not cited and/or accessed through the SAM website are provided in Section 7.0 of this document.

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Attachment C

Sample Collection Information for the Biotoxins and Methods Listed in SAM 2017

[Note: The acronyms and abbreviations used in this attachment are listed and defined in the beginning of the report.]

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Attachment C: Sample Collection Information for the Biotoxin Analytes and Methods Listed in SAM 2017

Analyte(s)	Selected Analytical Methods - SAM 2017*	Sample Type	Sampling Device / Medium	Sample Container Size[1]	Preservation	Holding Time	Packaging	Shipping Label[2]
Abrin and Abrine (abrin marker)	Presumptive: • [LFA] Adapted from Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science (2014) 12(1): 49-62 [Tier I / Tier II] • as Abrine [LC-MS-MS] EPA 600/R-13/022 [Tier I / Tier II] Confirmatory: • [ELISA and ECL] Adapted from Journal of Food Protection (2008) 71(9): 1868-1874 [Tier II] Biological Activity: • [Enzyme Activity] Adapted from Analytical Biochemistry (2008) 378(1): 87-89 [Tier II]	**Aerosol (filter/cassette, liquid impinger)[3]**	Filter: Sterile MCE or PTFE filter.[3] Place the filter in a sterile leak proof container. Impinger: Transfer contents into sterile leak proof container for shipping.	See Footnote (4)	• Immediately place on ice (e.g., ice packs, secure double-bagged ice). Target temperature ≤ 10°C. • Avoid freeze-thaw cycles during transport of samples collected for abrin. NOTE: For detection and measurement of abrine in treated water samples, add the following to the sample container prior to collection: • 8 mg sodium thiosulfate/100-mL sample • 6.4 mg sodium omadine /100-mL sample	Minimize transport and storage time. If feasible, analyze or extract immediately upon receipt at the laboratory. NOTE: 28 days for abrine in water	Seal container with tape or film and decontaminate the exterior of the container with bleach wipes or decontamination solution. Place in a cooler and package the samples outside the contaminated area as described in Footnote (5).	See Footnote (2) for environmental samples. For neat materials: Label outer package with the proper shipping name: "Toxins, extracted from living sources, liquid, n.o.s." AND • UN# 2811 (inhalation hazard), • UN# 3172 (liquid hazard), or • UN# 3462 (solid hazard)
		Particulate (swabs, wipes, dust socks)	Sterile leak proof container	At least 2 sterile, synthetic, and moistened wipes, swabs, or dust socks				
		Solid (soil, powder)	Sterile leak proof container	50 –100 mL				
		Water (surface water, waste water, drinking water)	Sterile leak proof container NOTE: Collect water samples for analysis of abrine in polypropylene container with polyethylene screw-cap.	100 mL				
Aflatoxins (B1, B2, G1, G2)	Presumptive and Confirmatory: • [Immunoaffinity (column) purification / HPLC-FL] Adapted from 991.31 (AOAC) [Tier II]	**Aerosol (filter/cassette, liquid impinger)[3]**	Filter: Sterile MCE or PTFE filter.[3] Place the filter in a sterile leak proof container. Impinger: Transfer contents into sterile leak proof container for shipping.	See Footnote (4)	• Immediately place on ice (e.g., ice packs, secure double-bagged ice). Target temperature ≤ 10°C.	Minimize transport and storage time. If feasible, analyze or extract immediately upon receipt at the laboratory.	Seal container with tape or film and decontaminate the exterior of the container with bleach wipes or decontamination solution. Place in a cooler and package the samples outside the contaminated area as described in Footnotes (5) and (6). Belongs to Packing Group I	See Footnote (2) for environmental samples. For neat materials: Label outer package with the proper shipping name: "Toxins, extracted from living sources, solid, n.o.s." AND • UN# 2811 (inhalation hazard), • UN# 3172 (liquid hazard), or • UN# 3462 (solid hazard)
		Particulate (swabs, wipes, dust socks)	Sterile leak proof container	At least 2 sterile, synthetic, and moistened wipes, swabs, or dust socks				
		Solid (soil, powder)	Sterile leak proof container	50 –100 mL				
		Water (surface water, waste water, drinking water)	Sterile leak proof container	100 mL				

Analyte(s)	Selected Analytical Methods - SAM 2017*	Sample Type	Sampling Device / Medium	Sample Container Size[1]	Preservation	Holding Time	Packaging	Shipping Label[2]
α-Amanitin	Presumptive: • [ELISA] Adapted from Journal of Food Protection (2005) 68(6): 1294-1301 [Tier II] Confirmatory: • [LC-MS-MS] EPA 600/R-13/022 (EPA) [Tier II]	**Aerosol (filter/cassette, liquid impinger)[3]**	Filter: Sterile MCE or PTFE filter.[3] Place the filter in a sterile leak proof container. Impinger: Transfer contents into sterile leak proof container for shipping.	See Footnote (4)	• Immediately place on ice (e.g., ice packs, secure double-bagged ice). Target temperature ≤ 10°C. NOTE: For treated water: • Add 8 mg sodium thiosulfate and 6.4 mg sodium omadine / 100-mL sample.	Minimize transport and storage time. If feasible, analyze or extract immediately upon receipt at the laboratory. NOTE: 28 days for water samples	Seal container with tape or film and decontaminate the exterior of the container with bleach wipes or decontamination solution. Place in a cooler and package the samples outside the contaminated area as described in Footnotes (5) and (6). Belongs to Packing Group II	See Footnote (2) for environmental samples. For neat materials: Label outer package with the proper shipping name: "Toxins, extracted from living sources, solid, n.o.s." AND • UN# 2811 (inhalation hazard), • UN# 3172 (liquid hazard), or • UN# 3462 (solid hazard)
		Particulate (swabs, wipes, dust socks)	Sterile leak proof container	At least 2 sterile, synthetic, and moistened wipes or swabs, or dust socks				
		Solid (soil, powder)	Sterile leak proof container	50 – 100 g				
		Water (surface water, waste water, drinking water)	Polypropylene container with polyethylene screw-cap	100 mL				
Anatoxin-a	Presumptive: • ELISA [Tier III] (No reference is available at this time. Please consult the SAM website* for information regarding the status of this assay.) Confirmatory: • [LC-ESI-MS-MS] Method 545 (EPA) [Tier I / Tier II]	**Aerosol (filter/cassette, liquid impinger)[3]**	Filter: Sterile MCE or PTFE filter. Place the filter in a sterile leak proof container. Impinger: Transfer contents into sterile leak proof container for shipping. NOTE: Use amber glass or amber PETG containers (or protect from light)	See Footnote (4)	• Immediately place on ice (e.g., ice packs, secure double-bagged ice). Target temperature ≤ 10°C. • Protect from light NOTE: For treated water samples, add 1 g sodium bisulfate and 0.1 g ascorbic acid / 1-L sample.	Minimize transport and storage time. If feasible, analyze or extract immediately upon receipt at the laboratory. NOTE: 28 days for water samples cooled to < 10°C	Seal container with tape or film and decontaminate the exterior of the container with bleach wipes or decontamination solution. Place in a cooler and package the samples outside the contaminated area as described in Footnote (5). Belongs to Packing Group II	See Footnote (2) for environmental samples. For neat materials: Label outer package with the proper shipping name: "Toxins, extracted from living sources, liquid, n.o.s." AND • UN# 2811 (inhalation hazard), • UN# 3172 (liquid hazard), or • UN# 3462 (solid hazard)
		Particulate (swabs, wipes, dust socks)	Sterile leak proof container - amber glass or amber PETG (or protect from light)	At least 2 sterile, synthetic, and moistened wipes, swabs, or dust socks				
		Solid (soil, powder)	Sterile leak proof container - amber glass or amber PETG (or protect from light)	50 –100 mL				
		Water (surface water, waste water, drinking water)	Sterile leak proof container - amber glass or amber PETG (or protect from light)	100 mL				

Analyte(s)	Selected Analytical Methods - SAM 2017*	Sample Type	Sampling Device / Medium	Sample Container Size[1]	Preservation	Holding Time	Packaging	Shipping Label[2]
Botulinum neurotoxins (Serotypes A - G)	Presumptive: • [LFA] Adapted from EPA Environmental Technology Verification report [Tier I / Tier II] • [ECL] Adapted from Journal of the Science of Food and Agriculture (2014) 94: 707-712 [Tier II] • [Fluorescent bead-based assay] Multi-agency Report. Rapid Botulinum Toxin Assay Test, Evaluation and Validation Study Report [Tier III] • [Antibody capture FRET-based activity] Adapted from Analytical Biochemistry (2011) 411: 200-209 [Tier II] Confirmatory: • [LC-ESI-MS-MS / MALDI-TOF MS] Adapted from Analytical Chemistry (2005) 77: 3916-3924 [Tier II] Biological Activity: • [Mouse Bioassay] APHA Press Compendium of Methods, Chapter 32 [Tier I]	**Aerosol (filter/cassette, liquid impinger)[3]**	Filter: Sterile MCE or PTFE filter.[3] Place the filter in a sterile leak proof container. Impinger: Transfer contents into sterile leak proof container for shipping.	See Footnote (4)	• Immediately place on ice (e.g., ice packs, secure double-bagged ice). Target temperature ≤ 10°C. • Avoid freeze-thaw cycles during transport. NOTE: For treated water, add 50 mg sodium thiosulfate / L sample (DO NOT add sodium thiosulfate to samples that will be analyzed using MS)	Minimize transport and storage time. If feasible, analyze or extract immediately upon receipt at the laboratory.	Seal container with tape or film and decontaminate the exterior of the container with bleach wipes or decontamination solution. Place in a cooler and package the samples outside the contaminated area as described in Footnotes (5) and (6). Belongs to Packing Group I	See Footnote (2) for environmental samples. For neat materials: Label outer package with the proper shipping name: "Toxins, extracted from living sources, liquid, n.o.s." AND • UN# 2811 (inhalation hazard), • UN# 3172 (liquid hazard), or • UN# 3462 (solid hazard)
		Particulate (swabs, wipes, dust socks)	Sterile leak proof container	At least 2 sterile, synthetic, and moistened wipes, swabs, or dust socks				
		Solid (soil, powder)	Sterile leak proof container	50 –100 mL				
		Water (surface water, waste water, drinking water)	Sterile leak proof container	100 mL				

Analyte(s)	Selected Analytical Methods - SAM 2017*	Sample Type	Sampling Device / Medium	Sample Container Size[1]	Preservation	Holding Time	Packaging	Shipping Label[2]
Brevetoxins (A and B Forms)	Presumptive and Confirmatory: • [ELISA / LC-MS] Adapted from Toxicon (2015) 96: 82-88 [Tier II]	**Aerosol (filter/cassette, liquid impinger)[3]**	Filter: Sterile MCE or PTFE filter.[3] Place the filter in a sterile leak proof container. Impinger: Transfer contents into sterile leak proof container for shipping.	See Footnote (4)	• Immediately place on ice (e.g., ice packs, secure double-bagged ice). Target temperature ≤ 10°C.	Minimize transport and storage time. If feasible, analyze or extract immediately upon receipt at the laboratory.	Seal container with tape or film and decontaminate the exterior of the container with bleach wipes or decontamination solution. Place in a cooler and package the samples outside the contaminated area as described in Footnotes (5) and (6). Belongs to Packing Group II	See Footnote (2) for environmental samples. For neat materials: Label outer package with the proper shipping name: "Toxic solids, organic, n.o.s." AND • UN# 2811 (inhalation hazard), • UN# 3172 (liquid hazard), or • UN# 3462 (solid hazard)
		Particulate (swabs, wipes, dust socks)	Sterile, leak proof container	At least 2 sterile, synthetic, and moistened wipes, swabs, or dust socks				
		Solid (soil, powder)	Sterile leak proof container	50 –100 mL				
		Water (surface water, waste water, drinking water)	Sterile leak proof container	100 mL				
Cylindrospermopsin	Presumptive: • [ELISA] Adapted from Environmental Sciences and Technology (2010) 44: 7361-7368 [Tier II] Confirmatory: • [LC-ESI-MS-MS] Method 545 (EPA) [Tier I / Tier II]	**Aerosol (filter/cassette, liquid impinger)[3]**	Filter: Sterile MCE or PTFE filter.[3] Place the filter in a sterile leak proof container. Impinger: Transfer contents into sterile leak proof container for shipping. NOTE: Use amber glass or amber PETG containers (or protect from light)	See Footnote (4)	• Immediately place on ice (e.g., ice packs, secure double-bagged ice). Target temperature ≤ 10°C. NOTE: For treated water, add 1 g sodium bisulfate and 0.1 g ascorbic acid / 1-L sample.	Minimize transport and storage time. If feasible, analyze or extract immediately upon receipt at the laboratory. NOTE: 28 days for water samples cooled to < 10°C	Seal container with tape or film and decontaminate the exterior of the container with bleach wipes or decontamination solution. Place in a cooler and package the samples outside the contaminated area as described in Footnote (5).	This substance does not require specific labeling for transport
		Particulate (swabs, wipes, dust socks)	Sterile leak proof container - amber glass or amber PETG (or protect from light)	At least 2 sterile, synthetic, and moistened wipes, swabs, or dust socks				
		Solid (soil, powder)	Sterile leak proof container - amber glass or amber PETG (or protect from light)	50 –100 mL				
		Water (surface water, waste water, drinking water)	Amber glass container with fluoropolymer- lined screw cap	100 mL				

Analyte(s)	Selected Analytical Methods - SAM 2017*	Sample Type	Sampling Device / Medium	Sample Container Size[1]	Preservation	Holding Time	Packaging	Shipping Label[2]
Diacetoxyscirpenol (DAS)	Presumptive: • [ELISA] Adapted from Journal of Food Microbiology (1988) 6(1): 9–17 [Tier III] Confirmatory: • [LC-MS-MS] Adapted from Food Research International (2015) 72: 247-255 [Tier II]	**Aerosol (filter/cassette, liquid impinger)[3]**	Filter: Sterile MCE or PTFE filter.[3] Place the filter in a sterile leak proof container. Impinger: Transfer contents into sterile leak proof container for shipping.	See Footnote (4)	• Immediately place on ice (e.g., ice packs, secure double-bagged ice). Target temperature ≤ 10°C.	Minimize transport and storage time. If feasible, analyze or extract immediately upon receipt at the laboratory.	Seal container with tape or film and decontaminate the exterior of the container with bleach wipes or decontamination solution. Place in a cooler and package the samples outside the contaminated area as described in Footnotes (5) and (6). Belongs to Packing Group II	See Footnote (2) for environmental samples. For neat materials: Label outer package with the proper shipping name: "Toxins, extracted from living sources, solid, n.o.s." AND • UN# 2811 (inhalation hazard), • UN# 3172 (liquid hazard), or • UN# 3462 (solid hazard)
		Particulate (swabs, wipes, dust socks)	Sterile leak proof container	At least 2 sterile, synthetic, and moistened wipes, swabs, or dust socks				
		Solid (soil, powder)	Sterile leak proof container	50 –100 mL				
		Water (surface water, waste water, drinking water)	Sterile leak proof container	100 mL				
Domoic acid	Presumptive: • [ELISA] Adapted from Journal of AOAC International (2007) 90(4): 1011-1027 [Tier II] • [ELISA] Adapted from Journal of Shellfish Research (2008) 27(5): 1301-1310 [Tier II] Confirmatory: • [LC-UV] Adapted from Journal of the Mexican Chemical Society (2011) 55(2): 65-71 [Tier II]	**Aerosol (filter/cassette, liquid impinger)[3]**	Filter: Sterile MCE or PTFE filter.[3] Place the filter in a sterile leak proof container. Impinger: Transfer contents into sterile leak proof container for shipping.	See Footnote (4)	• Immediately place on ice (e.g., ice packs, secure double-bagged ice). Target temperature ≤ 10°C.	Minimize transport and storage time. If feasible, analyze or extract immediately upon receipt at the laboratory.	Seal container with tape or film and decontaminate the exterior of the container with bleach wipes or decontamination solution. Place in a cooler and package the samples outside the contaminated area as described in Footnote (5).	This substance does not require specific labeling for transport
		Particulate (swabs, wipes, dust socks)	Sterile leak proof container	At least 2 sterile, synthetic, and moistened wipes, swabs, or dust socks				
		Solid (soil, powder)	Sterile leak proof container	50 – 100 mL				
		Water (surface water, waste water, drinking water)	Sterile leak proof container	A minimum of 100 mL				

Analyte(s)	Selected Analytical Methods - SAM 2017*	Sample Type	Sampling Device / Medium	Sample Container Size[1]	Preservation	Holding Time	Packaging	Shipping Label[2]
Microcystins (LA, LF, LR, LY, RR, YR)	Presumptive: • [ELISA] Method 546 (EPA) [Tier I / Tier II] Confirmatory: • [LC-MS-MS] Method 544 (EPA) [Tier I / Tier II]	**Aerosol (filter/cassette, liquid impinger)[3]**	Filter: Sterile MCE or PTFE filter.[3] Place the filter in a sterile leak proof container. Impinger: Transfer contents into sterile leak proof container for shipping. NOTE: Use amber glass or amber PETG containers (or protect from light)	See Footnote (4)	• Immediately place on ice (e.g., ice packs, secure double-bagged ice). Target temperature ≤ 10°C; do not freeze] • Protect from light NOTE: Prior to collection, add the following to containers used to collect treated water samples: • For samples to be analyzed using ELISA (Method 546), 100 mg sodium thiosulfate / 1-L sample. • For samples to be analyzed using LC-MS-MS (Method 544), add 1) 7.75 g Trizma, 2) 2 g 2-chloroacetamide, 3) 100 mg ascorbic acid, 4) 0.35 g ethylenediamine-tetraacetic acid trisodium salt / 1-L sample.	Method 544 analysis: 28 days Method 546 analysis: 48 hours (14 days if frozen within 48 hours)	Seal container with tape or film and decontaminate the exterior of the container with bleach wipes or decontamination solution. Place in a cooler and package the samples outside the contaminated area as described in Footnotes (5) and (6). Belongs to Packing Group I	See Footnote (2) for environmental samples. For neat materials: Label outer package with the proper shipping name: "Toxins, extracted from living sources, solid, n.o.s." AND • UN# 2811 (inhalation hazard), • UN# 3172 (liquid hazard), or • UN# 3462 (solid hazard)
		Particulate (swabs, wipes, dust socks)	Sterile leak proof container - amber glass or amber PETG (or protect from light)	At least 2 sterile, synthetic, and moistened wipes, swabs, or dust socks				
		Solid (soil, powder)	Sterile leak proof container - amber glass or amber PETG (or protect from light)	50 –100 mL				
		Water (surface water, waste water, drinking water)	Sterile leak proof container - amber glass or amber PETG (or protect from light)	500 mL				
Picrotoxin	Confirmatory: • [LC-UV] Adapted from Journal of Pharmaceutical and Biomedical Analysis (1989) 7(3): 369-375 [Tier II]	**Aerosol (filter/cassette, liquid impinger)[3]**	Filter: Sterile MCE or PTFE filter.[3] Place the filter in a sterile leak proof container. Impinger: Transfer contents into sterile leak proof container for shipping.	See Footnote (4)	• Immediately place on ice (e.g., ice packs, secure double-bagged ice). Target temperature ≤ 10°C. • Protect from light.	Minimize transport and storage time. If feasible, analyze or extract immediately upon receipt at the laboratory.	Seal container with tape or film and decontaminate the exterior of the container with bleach wipes or decontamination solution. Place in a cooler and package the samples outside the contaminated area as described in Footnotes (5) and (6). Belongs to Packing Group II	See Footnote (2) for environmental samples. For neat materials: Label outer package with the proper shipping name: "Toxins, extracted from living sources, solid, n.o.s." AND • UN# 2811 (inhalation hazard), • UN# 3172 (liquid hazard), or • UN# 3462 (solid hazard)
		Particulate (swabs, wipes, dust socks)	Sterile leak proof container	At least 2 sterile, synthetic, and moistened wipes, swabs, or dust socks				
		Solid (soil, powder)	Sterile leak proof container	50 –100 mL				
		Water (surface water, waste water, drinking water)	Sterile leak proof container	100 mL				

Analyte(s)	Selected Analytical Methods - SAM 2017*	Sample Type	Sampling Device / Medium	Sample Container Size[1]	Preservation	Holding Time	Packaging	Shipping Label[2]
Ricin and Ricinine (ricin marker)	Presumptive: • [LFA] Adapted from Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science (2013) 11(4): 237-250 [Tier I] • [ELISA] Adapted from Journal of Food Protection (2005) 68(6): 1294-1301 [Tier II] • [ECL] Adapted from Journal of AOAC International (2008) 91(2): 376-382 [Tier II] • as Ricinine [LC-MS-MS] EPA 600/R-13/022 (EPA/CDC) [Tier I / Tier II] Confirmatory and Biological Activity: • [Isotope Dilution LC-MS / MALDI-TOF MS] Adapted from Analytical Chemistry (2011) 83: 2897-2905 [Tier II]	**Aerosol (filter/cassette, liquid impinger)[3]**	Filter: Sterile MCE or PTFE filter.[3] Place the filter in a sterile leak proof container. Impinger: Transfer contents into sterile leak proof container for shipping.	See Footnote (4)	• Immediately place on ice (e.g., ice packs, secure double-bagged ice). Target temperature ≤ 10°C. • Avoid freeze-thaw cycles during transport of samples collected for ricin. NOTE: For treated water, add 50 mg sodium thiosulfate / 1-L sample NOTE: For samples collected for detection and measurement of ricinine in treated water, add the following to the sample container prior to collection: • 8 mg sodium thiosulfate/100mL sample • 6.4 mg sodium omadine / 100-mL sample	Minimize transport and storage time. If feasible, analyze or extract immediately upon receipt at the laboratory.	Seal container with tape or film and decontaminate the exterior of the container with bleach wipes or decontamination solution. Place in a cooler and package the samples outside the contaminated area as described in Footnotes (5) and (6). Belongs to Packing Group III	See Footnote (2) for environmental samples. For neat materials: Label outer package with the proper shipping name: "Toxins, extracted from living sources, liquid, n.o.s." AND • UN# 2811 (inhalation hazard), • UN# 3172 (liquid hazard), or • UN# 3462 (solid hazard)
		Particulate (swabs, wipes, dust socks)	Sterile leak proof container	At least 2 sterile, synthetic, and moistened wipes, swabs, or dust socks				
		Solid (soil, powder)	Sterile leak proof container	50 –100 mL				
		Water (surface water, waste water, drinking water)	Sterile leak proof container	100 mL				

Analyte(s)	Selected Analytical Methods - SAM 2017*	Sample Type	Sampling Device / Medium	Sample Container Size[1]	Preservation	Holding Time	Packaging	Shipping Label[2]
Saxitoxins (STX, NEOSTX, dcSTX, dcNEOSTX, doSTX, GTX 1-6, dcGTX 1-4)	Presumptive: • [Receptor binding assay] Method 2011.27 (AOAC) [Tier II] • [ELISA] Adapted from Toxicon (2009) 54: 313-320 [Tier II] and (water samples) Harmful Algae (2016) 56: 77-90 [Tier I] Confirmatory: • [HILIC MS-MS] Adapted from Journal of Chromatography A (2015) 1387: 1-12 [Tier II]	**Aerosol (filter/cassette, liquid impinger)[3]**	Filter: Sterile MCE or PTFE filter.[3] Place the filter in a sterile leak proof container. Impinger: Transfer contents into sterile leak proof container for shipping. NOTE: Use amber glass or amber PETG containers (or protect from light)	See Footnote (4)	• Immediately place on ice (e.g., ice packs, secure double-bagged ice). Target temperature ≤ 10°C. NOTE: For treated water, add 100 – 1,000 mg/L sodium thiosulfate or 100 mg/L ascorbic acid NOTE: For untreated freshwater samples to be analyzed using ELISA kits, 10X concentrated diluent is added to the sample container prior to or immediately following sample collection. Therefore, coordinate with receiving laboratory(ies) prior to sample collection.	Minimize transport and storage time. If feasible, analyze or extract immediately upon receipt at the laboratory.	Seal container with tape or film and decontaminate the exterior of the container with bleach wipes or decontamination solution. Place in a cooler and package the samples outside the contaminated area as described in Footnotes (5) and (6). Belongs to Packing Group I	See Footnote (2) for environmental samples. For neat materials: Label outer package with the proper shipping name: "Toxins, extracted from living sources, liquid, n.o.s." AND • UN# 2811 (inhalation hazard), • UN# 3172 (liquid hazard), or • UN# 3462 (solid hazard)
		Particulate (swabs, wipes, dust socks)	Sterile leak proof container - amber glass or amber PETG (or protect from light)	At least 2 sterile, synthetic, and moistened wipes or swabs, or dust socks				
		Solid (soil, powder)	Sterile leak proof container - amber glass or amber PETG (or protect from light)	50 –100 mL				
		Water (surface water, waste water, drinking water)	Sterile leak proof container - amber glass or amber PETG (or protect from light)	A minimum of 100 mL				
Shiga and Shiga-like Toxins	Presumptive: • [ELISA] Adapted from Austin Immunology (2016) 1(2): 1007: 1-7 [Tier I / Tier II] Confirmatory: • [LC-MS-MS] Adapted from Analytical Chemistry (2014) 86: 4698-4706 [Tier II]	**Aerosol (filter/cassette, liquid impinger)[3]**	Filter: Sterile MCE or PTFE filter.[3] Place the filter in a sterile leak proof container. Impinger: Transfer contents into sterile leak proof container for shipping.	See Footnote (4)	• Immediately place on ice (e.g., ice packs, secure double-bagged ice). Target temperature ≤ 10°C. • Avoid freeze-thaw cycles during transport.	Minimize transport and storage time. If feasible, analyze or extract immediately upon receipt at the laboratory.	Seal container with tape or film and decontaminate the exterior of the container with bleach wipes or decontamination solution. . Place in a cooler and package the samples outside the contaminated area as described in Footnotes (5) and (6). Belongs to Packing Group I	See Footnote (2) for environmental samples. For neat materials: Label outer package with the proper shipping name: "Toxins, extracted from living sources, liquid, n.o.s." AND • UN# 2811 (inhalation hazard), • UN# 3172 (liquid hazard), or • UN# 3462 (solid hazard)
		Particulate (swabs, wipes, dust socks)	Sterile leak proof container	At least 2 sterile, synthetic, and moistened wipes or swabs, or dust socks				
		Solid (soil, powder)	Sterile leak proof container	50 –100 mL				
		Water (surface water, waste water, drinking water)	Sterile leak proof container	100 mL				

Analyte(s)	Selected Analytical Methods - SAM 2017*	Sample Type	Sampling Device / Medium	Sample Container Size[1]	Preservation	Holding Time	Packaging	Shipping Label[2]
Staphylococcal enterotoxins (SEA, SEB, SEC, SED, SEE)	Presumptive: • [ELFA] 2007.06 (AOAC) [Tier II] • [ECL] Adapted from Journal of AOAC International (2014) 97(3): 862-867 [Tier III] Confirmatory: • [ELISA] Adapted from Letters in Applied Microbiology (2011) 52: 468-474 [Tier II]	**Aerosol (filter/cassette, liquid impinger)[3]**	Filter: Sterile MCE or PTFE filter.[3] Place the filter in a sterile leak proof container. Impinger: Transfer contents into sterile leak proof container for shipping.	See Footnote (4)	• Immediately place on ice (e.g., ice packs, secure double-bagged ice). Target temperature ≤ 10°C. • Avoid freeze-thaw cycles during transport.	Minimize transport and storage time. If feasible, analyze or extract immediately upon receipt at the laboratory.	Seal container with tape or film and decontaminate the exterior of the container with bleach wipes or decontamination solution. Place in a cooler and package the samples outside the contaminated area as described in Footnotes (5) and (6). Belongs to Packing Group I	See Footnote (2) for environmental samples. For neat materials: Label outer package with the proper shipping name: "Toxins, extracted from living sources, solid, n.o.s." AND • UN# 2811 (inhalation hazard), • UN# 3172 (liquid hazard), or • UN# 3462 (solid hazard)
		Particulate (swabs, wipes, dust socks)	Sterile leak proof container	At least 2 sterile, synthetic, and moistened wipes or swabs, or dust socks				
		Solid (soil, powder)	Sterile leak proof container	50 –100 mL				
		Water (surface water, waste water, drinking water)	Sterile leak proof container	100 mL				
T-2 Mycotoxin (T-2, HT-2)	Presumptive: • [ELISA] Adapted from Journal of Food Protection (2005) 68(6): 1294-1301 [Tier II] Confirmatory: • [LC-MS] Adapted from Rapid Communications in Mass Spectrometry (2006) 20(9): 1422-1428 [Tier II]	**Aerosol (filter/cassette, liquid impinger)[3]**	Filter: Sterile MCE or PTFE filter.[3] Place the filter in a sterile leak proof container. Impinger: Transfer contents into sterile leak proof container for shipping.	See Footnote (4)	• Immediately place on ice (e.g., ice packs, secure double-bagged ice). Target temperature ≤ 10°C. NOTE: For treated water, add 8 mg sodium thiosulfate and 6.4 mg sodium omadine / 100-mL sample	Minimize transport and storage time. If feasible, analyze or extract immediately upon receipt at the laboratory.	Seal container with tape or film and decontaminate the exterior of the container with bleach wipes or decontamination solution. Place in a cooler and package the samples outside the contaminated area as described in Footnotes (5) and (6). Belongs to Packing Group I Aircraft: Cargo only	See Footnote (2) for environmental samples. For neat materials: Label outer package with the proper shipping name: "Toxins, extracted from living sources, solid, n.o.s." AND • UN# 2811 (inhalation hazard), • UN# 3172 (liquid hazard), or • UN# 3462 (solid hazard)
		Particulate (swabs, wipes, dust socks)	Sterile leak proof container	At least 2 sterile, synthetic, and moistened wipes or swabs, or dust socks				
		Solid (soil, powder)	Sterile leak proof container	50 –100 mL				
		Water (surface water, waste water, drinking water)	Sterile leak proof container	100 mL				

Analyte(s)	Selected Analytical Methods - SAM 2017*	Sample Type	Sampling Device / Medium	Sample Container Size[1]	Preservation	Holding Time	Packaging	Shipping Label[2]
Tetrodotoxin	Presumptive: • [Receptor binding assay] Method 2011.27 (AOAC) [Tier II] Confirmatory: • [LC-MS-MS] Adapted from Toxicon (2016) 119: 64-71 [Tier II]	**Aerosol (filter/cassette, liquid impinger)[3]**	Filter: Sterile MCE or PTFE filter.[3] Place the filter in a sterile leak proof container. Impinger: Transfer contents into sterile leak proof container for shipping.	See Footnote (4)	• Immediately place on ice (e.g., ice packs, secure double-bagged ice). Target temperature ≤ 10°C.	Minimize transport and storage time. If feasible, analyze or extract immediately upon receipt at the laboratory.	Seal container with tape or film and decontaminate the exterior of the container with bleach wipes or decontamination solution. Place in a cooler and package the samples outside the contaminated area as described in Footnotes (5) and (6). Belongs to Packing Group I	See Footnote (2) for environmental samples. For neat materials: Label outer package with the proper shipping name: "Toxins, extracted from living sources, solid, n.o.s." AND • UN# 2811 (inhalation hazard), • UN# 3172 (liquid hazard), or • UN# 3462 (solid hazard)
		Particulate (swabs, wipes, dust socks)	Sterile leak proof container	At least 2 sterile, synthetic, and moistened wipes or swabs, or dust socks				
		Solid (soil, powder)	Sterile leak proof container	50 –100 mL				
		Water (surface water, waste water, drinking water)	Sterile leak proof container	100 mL				

Footnotes:

* Methods listed in this column can be located using the SAM website (https://www.epa.gov/homeland-security-research/selected-analytical-methods-environmental-remediation-and-recovery-sam). Full citations for references not cited and/or accessed through this document or its website are provided in Section 7.0. Analytical technologies and methods addressing biotoxins continue to be developed and improved; the contact information on this website should be used for updates regarding analytical procedures.

(1) Sample sizes are provided for guidance, and may vary depending on the specific contamination incident, data quality objectives and requirements, and laboratory needs. If requested by the laboratory, additional sample(s) must be collected for analyses using multiple methods, or for laboratory quality control analyses (e.g., duplicates, matrix spikes). It is also recommended that additional sample(s) be collected in cases where low concentrations are expected or in the case of an anticipated need for reanalysis due to sample spillage or unforseen analytical difficulties.

(2) The exterior of the package must be labeled with the proper shipping name and the UN Number (49 CFR 172.301). For packages meeting the small quantity exception (49 CFR 173.153), label the exterior of the package as follows: "This package conforms to 49 CFR 173.4." No other hazard labeling is required. Packaging must meet the minimum standards as described in 49 CFR 173.4. Environmental samples meet the small quantities exception for Division 6.1 (poisonous) materials if the maximum quantity of material per inner receptacle or article is limited to—(i) Thirty (30) mL (1 ounce) for authorized liquids, other than Division 6.1, Packing Group I, Hazard Zone A or B materials; (ii) Thirty (30) g (1 ounce) for authorized solid materials; (iii) One (1) g (0.04 ounce) for authorized materials meeting the definition of a Division 6.1, Packing Group I, Hazard Zone A or B material. Environmental samples sufficiently diluted so as to no longer meet the standards of a poisonous material (49 CFR 173.132, Class 6, Division 6.1 – Definitions) do not require hazard labeling. For packages using dry ice to maintain temperature preservation requirements, attach a dry ice label to the exterior of the packaging, inform the shipper of the weight of the dry ice, and the name and address of the shipper and recipient.

(3) Information regarding the types of filters used for collection of aerosol samples to be analyzed for toxins is limited. Sample collectors also should consult the Sample Collection Plan (SCP), Health and Safety Plan (HASP) and/or analytical laboratory to determine the appropriate air collection filter(s).

(4) Volumes of collected air samples are dependent on the concentration of the toxin and the collection device used. Sample collectors should consult the incident-specific Sample Collection Plan (SCP), Health and Safety Plan (HASP) and/or analytical laboratory for appropriate volumes.

(5) Sample transport containers are packed outside the contaminated area. Samples must be packed in a manner that protects the integrity of the sample containers and provides temperature conditions required for sample preservation. Samples should be surrounded by shock- and enough water-absorbent packing material to absorb sample contents. If required for preservation, samples should be surrounded by ice or dry ice in a cooler to ensure sample temperatures do not exceed temperature requirements. If dry ice is used, the outer packaging must be appropriately labeled (Footnote (3). Ice should be placed in separate plastic bags or cold packs should be used to avoid leakage, and the bags placed around, among, and on top of the secondary sample containers. Further guidance can be obtained from 49 CFR 173.199 (http://edocket.access.gpo.gov/cfr_2002/octqtr/pdf/49cfr173.199.pdf) and 42 CFR 72 and 73 (http://oig.hhs.gov/authorities/docs/05/032905FRselectagents.pdf).

(6) Hazardous substances belonging to Class 6, Division 6.1 are packaged according to Packing Groups. Specifications for the non-bulk packaging for Packing Groups I, II, and III are found at 49 CFR 173.201 – 173.203 for liquids, and at 173.211 – 173.213 for solids. For samples meeting the small quantities exception, packaging must meet the minimum standards as described in 49 CFR 173.4. Sample collectors also should consult the incident-specific SCP for instructions regarding shipping labels.

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