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Sample Collection Information Document for Chemical and Radiochemical Analytes

Companion to Selected Analytical Methods for Environmental Remediation and Recovery (SAM) – 2012

SCIENCE

Office of Research and Development
National Homeland Security Research Center

Sample Collection Information Document for Chemical and Radiochemical Analytes

Companion to Selected Analytical Methods for Environmental Remediation and Recovery (SAM) 2012

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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Acronyms and Abbreviations

AOAC	Association of Official Analytical Chemists
ASTM	American Society for Testing and Materials
CDC	Centers for Disease Control and Prevention
CFR	Code of Federal Regulations
Ch.	Chapter
CLP	Contract Laboratory Program
COC	Chain of Custody
CSC	Computer Sciences Corporation
CWA	Chemical Warfare Agent
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	Diisopropylaminoethyl methyl thiolophosphonate
ED	Ethyldichloroarsine
EDEA	N-Ethyldiethanolamine
EMPA	Ethylmethyl phosphonate
EMSL	Environmental Monitoring and Support Laboratory
EPA	U.S. Environmental Protection Agency
FDA	U.S. Food and Drug Administration
FRMAC	Federal Radiological Monitoring and Assessment Center
GC	Gas chromatography
GPS	Global positioning system
HASL	Health and Safety Laboratory
HASP	Health and Safety Plan
HMP	Hydroxymethyl piperidine
HMX	Octahydro-1,3,5,7- tetranitro-1,3,5,7- tetrazocine
HMTD	Hexamethylenetriperoxidediamine
i.d.	Inner diameter
IATA	International Air Transportation Association
IMPA	Isopropyl methylphosphonic acid
IO	Inorganic
ISO	International Organization for Standardization
LC/MS/MS	Liquid chromatograph/tandem mass spectrometer
MARLAP	Multi-Agency Radiological Laboratory Protocols
MDEA	Methyldiethanolamine
MPA	Methylphosphonic acid
N	Normal
NBD chloride	7-chloro-4-nitrobenzo-2-oxa-1,3-diazole
NEMI	National Environmental Methods Index
NHSRC	National Homeland Security Research Center
NIOSH	National Institute for Occupational Safety and Health
NIST	National Institute of Standards and Technology
n.o.s.	Not otherwise specified (as used in 49 CFR Part 172)
NRC	U.S. Nuclear Regulatory Commission
o.d.	Outer diameter
ORISE	Oak Ridge Institute for Science and Education
OSHA	Occupational Safety and Health Administration

OSWER	Office of Solid Waste and Emergency Response
OVS	OSHA versatile sampler
OW	Office of Water
PETN	Pentaerythritol tetranitrate
PMPA	Pinacolyl methyl phosphonic acid
PPE	Personal protective equipment
PTFE	Polytetrafluoroethylene (Teflon®)
PUF	Polyurethene foam
PVC	Polyvinylchloride
QC	Quality control
qty	Quantity
RDX	Hexahydro-1,3,5-trinitro-1,3,5-triazine
RESL	Radiological and Environmental Sciences Laboratory
SAM	*Selected Analytical Methods for Environmental Remediation and Recovery*
SCID	Sample Collection Information Document
SCP	Sample Collection Plan
SM	Standard Method
SRS	Savannah River Site
SW	Solid waste
TBD	To be determined
TDG	Thiodiglycol
TEA	Triethanolamine
TNB	Trinitrobenzene
TNT	Trinitrotoluene
TO	Toxic organic
UN	United Nations
USGS	United States Geological Survey
VCSB	Voluntary Consensus Standards Body
VOA	Volatile organic analyte
VOC	Volatile organic compound
Vol.	Volume
VTSR	Validated Time of Sample Receipt
XAD	Polymeric resin

Sample Collection Information Document

[Companion to Selected Analytical Methods for Environmental Remediation and Recovery (SAM) 2012]

1.0 Background

The U.S. Environmental Protection Agency's (EPA's) National Homeland Security Research Center (NHSRC) 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] NHSRC periodically reviews and updates the SAM document to address the needs of homeland security, reflect improvements in analytical methods and new technologies, and incorporate changes in target analytes.

During development of the SAM documents, EPA recognized the need for a companion document to provide information regarding collection of samples for analysis by the methods selected. 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 and radiochemical samples to be analyzed using the methods listed in SAM 2012. As with SAM, NHSRC plans to update the information in this document periodically, to reflect changes to the analytes and/or methods listed in SAM.

> The information contained in this document is intended to support and be used with the methods listed in SAM 2012. The information will be reviewed and updated periodically, along with the SAM document, 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, and to provide information needed for collection of samples to be analyzed using the specific methods and procedures listed in SAM 2012 (EPA/600/R-12/555). Where possible, the information provided was obtained from the sample collection requirements and guidelines included in the SAM 2012 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 by personnel trained in collection of environmental samples containing the target analytes and in dealing with the corresponding safety concerns. Information is included regarding containers,

[1] Formerly *Standardized Analytical Methods for Environmental Restoration Following Homeland Security Events* (SAM). SAM and its methods are available at: http://www.epa.gov/sam/.

collection volume or weight, preservation, holding times, and packaging of samples representing the sample types and analytes for chemical and radiochemical analytes listed in SAM 2012. Collection, preservation, and shipment procedures and information for samples containing chemical warfare agents (CWAs) listed in SAM are currently being evaluated by EPA and, therefore, are not included in this document at this time. Sample collection information for pathogens and biotoxins listed in SAM are being evaluated and developed, and also are not included in this document. For information regarding collection of samples to be analyzed for CWAs, pathogens or biotoxins, users of this document should contact the SAM technical leads at http://www.epa.gov/sam/resources.htm.

NOTE: It is possible that some of the information in this document should be modified to address site- or event-specific data needs; for example, additional sample volume may be needed for quality control (QC) or in cases when a low concentration of analyte is suspected. Sample Collection Plans (SCPs) should be in place and consulted for specific sample collection requirements prior to initiation of sample collection activities. Site- or event-specific SCPs include information regarding laboratory capacity, the extent of contamination, target analytes, data quality objectives, sample locations and the number and type of samples needed.

2.1 Sample Collection Information Attachments

This document contains the following two attachments listing information for collection of samples that will be analyzed for measurement of the analytes listed in SAM 2012:

- Attachment A: Sample Collection Information for the Chemical Analytes and Methods Listed in SAM 2012
- Attachment B: Sample Collection Information for the Radiochemical Analytes and Methods Listed in SAM 2012

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 sample type (e.g., solid, particulate, water, wipes) and corresponds to the sample types listed for each analyte in SAM.

2.2 Document Development

EPA developed a hierarchy of references to prioritize the documents and resources that were used to identify the information that is included in this document. The first sources consulted were the methods listed in SAM 2012. If those methods included sample collection information, the information was evaluated and, if appropriate, included in the sample collection information tables provided in Attachments A and B. 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)[2] methods were consulted. If no

[2] 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.

procedures were identified for collection of a particular analyte/matrix pair, methods for that analyte in other sample types were considered, followed by procedures described and supported by data in research literature, such as journal articles.

The following agencies, organizations, and publications were used:

- U.S. EPA – United States Environmental Protection Agency
- AOAC – 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. 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
- Organisation for the Prohibition of Chemical Weapons
- OSHA – Occupational Safety and Health Administration
- *Standard Methods for the Examination of Water and Wastewater*
- Washington State Department of Ecology
- Journals: *Analyst, Analytical Letters, Atmospheric Environment, Chromatographia, Journal of Chromatography A, Journal of Chromatography B, Journal of Forensic Sciences*

Sample collection information was not identified for all the analyte/matrix pairs listed in SAM. In some cases, "TBD" (to be determined) is used to identify gaps of information that have yet to be determined. In other cases, a footnote is used to identify information that is considered to be applicable to a given analyte/matrix pair because the information is specific to a similar analyte or matrix.

2.3 Limitations

This document provides summary information only regarding collection of samples to be analyzed for measurement of the chemical and radiochemical analytes listed in SAM 2012. Although at this time much of the information has not been tested for the particular analytes (e.g., analytes not explicitly identified in the method) or sample types, the information listed is considered to be the most appropriate currently available. For example, research is needed to determine appropriate preservation and holding times for many of the chemical agents. 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.

Sample collection plans must be consulted for site- or event-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 event-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 a sample collection event. 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. Guidance on developing HASPs is provided in the U.S. Department of Labor Occupational Safety and Health Administration's template at: https://www.osha.gov/dep/anthrax/hasp/index.html. At a minimum, HASPs should include instructions and guidelines regarding:

- Names, positions, and contact information of key personnel and health and safety personnel
- Site- or event-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 event 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 event 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 too high so 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 and B), must be up to date regarding medical screening requirements, and must be approved for site entry. 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 apply appropriate personnel monitoring
- 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. Sample collectors should consult with project managers and the SCP to determine what equipment and materials should be assembled. Prior to sample collection, samplers should also contact the laboratory that will be analyzing the samples to understand laboratory-specific requirements. Sample kits should contain all sample containers, materials, supplies and forms needed to perform sample collection, decontamination, documentation and field packaging activities.

4.1 Field Sampling Equipment and Supplies

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

- Sampling devices (e.g., air filters, soil samplers, water samplers, air filter samplers)
- Sample preservation equipment (e.g., acids, dechlorinating reagents)
- Sample volumetric measuring devices and/or weighing devices
- Sample containers and packaging equipment
- 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
- Pre-labeled and pre-weighed sampling containers
- Shipping containers, shipping forms, and shipping labels

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)
- Sampling depth
- Physical and meteorological conditions

- Date and time of sampling
- Sample medium
- Expected contaminants
- Expected radionuclides (if applicable)
- Sample identification number
- 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 type of instrument used, background count rates, and units.

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; 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 cleaned or disinfected prior to packing into transport or shipping containers. For samples containing radiochemical analytes, each sample container should have exposure 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). Summary procedures for cleaning and sealing sample containers are provided in the tables included in Attachments A and B. 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

Samplers are responsible for ensuring compliance with DOT and IATA regulations regarding the transfer of hazardous substances and environmental samples. These 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 and regulatory exceptions; and 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 through 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.

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, 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 would be broken if a container were to be 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 and B:

- **Analyte** – The chemical compound, class of compound, radionuclide or radioactivity that will be measured in the sample. The analytes in this document are intended to address the analytes listed in SAM 2012.

- **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.

- **Packaging** – Sample container packaging requirements for shipment of sample 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 $\leq 4°C$.

- **Sample Size** – The minimum amount of sample that should be collected to support analysis of a single sample. Volume and weight requirements depend on the target analyte(s), the analytical method that will be used, and the data requirements.

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

- **Source/SAM Method** – The reference(s) supporting the information provided. Tiers are provided for SAM chemistry methods, to indicate the level of analytical method usability assigned by SAM workgroups for the specific analyte and sample type. SAM describes these tiers 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 a nalysis of environmental samples following a contamination event. Evaluation and/or use of the method(s) in multiple laboratories indicate that the method can be i mplemented with no additional modifications for the analyte/sample type.
  - **Tier II:** 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 a nalyte/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.

7.0 References

Analytical methods listed in Attachments A and B can be accessed through SAM at http://www.epa.gov/sam/. In addition to these methods, the following resources were used to prepare this document:

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Attachment A

Sample Collection Information for the Chemical Analytes and Methods Listed in SAM 2012

Attachment A: Sample Collection Information for the Chemical Analytes Listed in SAM 2012

Air Samples

Analyte	Sample Volume[1]	Sample Container	Holding Time	Sample Preservation or Preparation	Packaging Requirements	Shipping Label[2]	Source/SAM Method[3]
Acephate	TBD	250 mL PTFE centrifuge tube	TBD	TBD	TBD	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783	Adapted from Journal of Chromatography A, 1154(1): 3-25 [SAM Tier III]
Acrylamide	120 L (flow rate = 1 L/min)	Filter/solid sorbent tube (OVS-7 tube: 13mm quartz fiber filter, XAD-7 [270 mg/140 mg])	Stable at least 4 days at temperatures up to 45°C.	None	Place filter in protective covering. Wipe outside of each sorbent tube clean using a damp, then dry cloth. Cap both ends of the tube with plastic caps. Place protected filter and/or tubes 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	PV2004 (OSHA) [SAM Tier I]
Acrylonitrile	120 L (flow rate = 1 L/min)	Filter/solid sorbent tube (OVS-7 tube: 13mm quartz fiber filter, XAD-7 [270 mg/140 mg])	Stable at least 4 days at temperatures up to 45°C.	None	Place filter in protective covering. Wipe outside of each sorbent tube clean using a damp, then dry cloth. Cap both ends of the tube with plastic caps. Place protected filter and/or tubes 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	PV2004 (OSHA) [SAM Tier III]
Aldicarb (Temik)	240 – 480 L	Filter/solid sorbent tube (OVS-2 tube: 13mm quartz fiber filter, XAD-2 [270 mg/140 mg])	Stable at least 30 days at negative (-) 12°C or at least 7 days at 24°C.	Store refrigerated and tightly sealed. Analyze at room temperature.	Place filter in protective covering. Wipe outside of each sorbent tube clean using a damp, then dry cloth. Cap both ends of the tube with plastic caps. Place protected filter and/or tubes 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	5601 (NIOSH) [SAM Tier I]
Aldicarb sulfone	240 – 480 L	Filter / solid sorbent tube (OVS-2 tube: 13 mm quartz filter, XAD-2, [270 mg/140 mg])	TBD	Store refrigerated and tightly sealed. Analyze at room temperature.	Place filter in protective covering. Wipe outside of each sorbent tube clean using a damp, then dry cloth. Cap both ends of the tube with plastic caps. Place protected filter and/or tubes 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	5601 (NIOSH) [SAM Tier III]
Aldicarb sulfoxide	240 – 480 L	Filter/solid sorbent tube (OVS-2 tube: 13 mm quartz filter, XAD-2, [270 mg/140 mg])	TBD	Store refrigerated and tightly sealed. Analyze at room temperature.	Place filter in protective covering. Wipe outside of each sorbent tube clean using a damp, then dry cloth. Cap both ends of the tube with plastic caps. Place protected filter and/or tubes 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	5601 (NIOSH) [SAM Tier III]

Air Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Allyl alcohol[5]	One to four 1 L or 6 L samples (depending on suspected concentration) each in a separate canister[6]	Specially prepared 1 L or 6 L 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)	Under conditions of normal use, most VOCs can be recovered from canisters near their original concentrations after storage times of up to 30 days.	None	Ship canister in container provided by laboratory.	Standard carrier shipping label AND Allyl alcohol, 3, Flammable liquid, 6.1, Poison, UN1098.	TO-15 (EPA ORD) [SAM Tier III]
4-Aminopyridine	Not of concern in this sample type						
Ammonia	0.1 (at 50 ppm) – 96 L	Solid sorbent tube (sulfuric acid-treated silica gel)	1 day after desorption.	After desorption, adjust pH of the desorption solution to between 5 – 6.5 with NaOH.	Wipe outside of each sorbent tube clean using a damp, then dry cloth. Cap tubes 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	6015 (NIOSH) [SAM Tier I]
Ammonium metavanadate (analyze as total vanadium)	Up to 1700 m^3	Filter (quartz, silica, or cellulose fiber)	6 months	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 Ammonium metavanadate, 6.1, Poison, UN2859	IO-3.1 / IO-3.4 / IO-3.5 (EPA ORD) [SAM Tier I]
Arsenic, Total	Up to 1700 m^3	Filter (quartz, silica, or cellulose fiber)	6 months	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 Arsenic, 6.1, Poison, UN1558	IO-3.1 / IO-3.4 / IO-3.5 (EPA ORD) [SAM Tier I]
Arsenic trioxide (analyze as total arsenic)	Up to 1700 m^3	Filter (quartz, silica, or cellulose fiber)	6 months	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 Aresnic trioxide, 6.1, Poison, UN1561	IO-3.1 / IO-3.4 / IO-3.5 (EPA ORD) [SAM Tier I]
Arsine	0.1 L (at 0.05 ppm) – 10 L	Solid sorbent tube (coconut shell charcoal [100 mg/50 mg])	6 days	25°C	Wipe outside of each 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, 2.3 (2.1), Poisonous gas, UN2190	6001 (NIOSH) [SAM Tier I]
Asbestos	500 – 5000 L	Polycarbonate or cellulose ester filter	None	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	10312:1995 (ISO) [SAM Tier I]

Air Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Boron trifluoride	Up to 480 L	Midget glass bubbler containing 10-mL of 0.1 M NH_4F; sample solution transferred to 20 mL glass vial with PTFE cap	TBD	TBD	Wipe outside of each sorbent tube clean using a damp, then dry cloth. Cap tubes 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 Boron trifluoride, 2.3, Poisonous gas, UN1008	ID216SG (OSHA) [SAM Tier I]
Brodifacoum	Not of concern in this sample type						
Bromadiolone	Not of concern in this sample type						
Calcium arsenate (analyze as total arsenic)	Up to 1700 m^3	Filter (quartz, silica, or cellulose fiber)	6 months	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 Calcium arsenate, 6.1, Poison, UN1573	IO-3.1 / IO-3.4 / IO-3.5 (EPA ORD) [SAM Tier I]
Carbofuran (Furadan)	240 – 480 L	Filter/solid sorbent tube (OVS-2 tube: 13mm quartz fiber filter, XAD-2 [270 mg/140 mg])	Stable at least 30 days at negative (-) 12°C or at least 7 days at 24°C.	Store refrigerated and tightly sealed. Analyze at room temperature.	Place filter in protective covering. Wipe outside of each sorbent tube clean using a damp, then dry cloth. Cap both ends of the tube with plastic caps. Place protected filter and/or tubes 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	5601 (NIOSH) [SAM Tier I]
Carbon disulfide	One to four 1 L or 6 L samples (depending on suspected concentration) each in a separate canister[6]	Specially prepared 1-L or 6-L 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)	Under conditions of normal use, most VOCs can be recovered from canisters near their original concentrations after storage times of up to 30 days.	None	Ship canister in container provided by laboratory.	Standard carrier shipping label AND Carbon disulfide, 3, Flammable liquid, UN1131	TO-15 (EPA ORD) [SAM Tier I]
Carfentanil	Not of concern in this sample type						
Chlorfenvinphos	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store at ≤ 4°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	TO-10A (EPA ORD) [SAM Tier II]

Air Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Chlorine[5]	8 L (at 0.1 ppm) – 360 L	Prefilter and filter (PTFE, 0.5 µm and silver membrane, 25 mm, 0.45 µm)	Up to 30 days at 25°C.	Protect from light.	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	Adapted from Analyst, 124(12): 1853-1857/4500-Cl G (SM) [SAM Tier II]
2-Chloroethanol	2 (at 5 ppm) – 35 L (flow rate = 0.01 – 0.2 L/min)	Solid sorbent tube (petroleum charcoal [100 mg/50 mg])	TBD	None	Wipe outside of each 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	2513 (NIOSH) [SAM Tier I]
3-Chloro-1,2-propanediol[5]	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store at ≤ 4°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	TO-10A (EPA ORD) [SAM Tier III]
Chloropicrin[5]	5 L (flow rate = 0.2 L/min)	Solid sorbent tube (XAD-4 [100 mg/50 mg])	Minimize transport and storage time. If feasible, analyze or extract immediately upon receipt at the laboratory.	Room temperature in the dark.	Wipe outside of each 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	PV2103 (OSHA) [SAM Tier I]
Chlorpyrifos	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store at ≤ 4°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	TO-10A (EPA ORD) [SAM Tier I]
Chlorpyrifos oxon	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store at ≤ 4°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	TO-10A (EPA ORD) [SAM Tier III]
Crimidine	Not of concern in this sample type						
Cyanide, Amenable to chlorination	Not of concern in this sample type						
Cyanide, Total[5]	2 (at 5 ppm) – 90 L	Solid sorbent tube (soda lime [600 mg/200 mg])	Stable at least 2 weeks at 25°C.	Store at 25°C.	Wipe outside of each 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	6010 (NIOSH) [SAM Tier I]

Air Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Cyanogen chloride[5]	One to four 1 L or 6 L samples (depending on suspected concentration) each in a separate canister[6]	Specially prepared 1 L or 6 L 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).	Minimize transport and storage time. If feasible, analyze or extract immediately upon receipt at the laboratory.	None	Ship canister in container provided by laboratory.	Standard carrier shipping label AND Cyanogen chloride, 2.3, Poisonous gas, UN1589	TO-15 (EPA ORD) [SAM Tier III]
1,2-Dichloroethane (degradation product of HD)	One to four 1 L or 6 L samples (depending on suspected concentration) each in a separate canister[6]	Specially prepared 1 L or 6 L 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)	Under conditions of normal use, most VOCs can be recovered from canisters near their original concentrations after storage times of up to 30 days.	None	Ship canister in container provided by laboratory.	Standard carrier shipping label AND Ethylene dichloride, 6, Poison, UN1184	TO-15 (EPA ORD) [SAM Tier I]
Dichlorvos	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store at ≤ 4°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	TO-10A (EPA ORD) [SAM Tier I]
Dicrotophos	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store at ≤ 4°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	TO-10A (EPA ORD) [SAM Tier I]
Diesel Range Organics	Not of concern in this sample type						

Air Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Diisopropyl methylphosphonate (DIMP) (degradation product of GB)[5]	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store at ≤ 4°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	TO-10A (EPA ORD) [SAM Tier III]
Dimethylphosphite[5]	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	Minimize transport and storage time. If feasible, analyze or extract immediately upon receipt at the laboratory.	Store at ≤ 4°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	TO-10A (EPA ORD) [SAM Tier II]
Dimethyl phosphoramidic acid (degradation product of GA)[5]	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store at ≤ 4°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	TO-10A (EPA ORD) [SAM Tier III]
Diphacinone	Not of concern in this sample type						
Disulfoton	12 – 240 L	Filter/solid sorbent tube (OVS-2 tube: 13 mm quartz filter, XAD-2, [270 mg/140 mg])	10 days at 25°C or 30 days at 0°C.	10 days at 25°C or 30 days at 0°C.	Place filter in protective covering. Wipe outside of each sorbent tube clean using a damp, then dry cloth. Cap both ends of the tube with plastic caps. Place protected filter and/or tubes 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	5600 (NIOSH) [SAM Tier I]
Disulfoton sulfone oxon	12 – 240 L	Filter/solid sorbent tube (OVS-2 tube: 13 mm quartz filter, XAD-2, [270 mg/140 mg])	10 days at 25°C or 30 days at 0°C.	10 days at 25°C or 30 days at 0°C.	Place filter in protective covering. Wipe outside of each sorbent tube clean using a damp, then dry cloth. Cap both ends of the tube with plastic caps. Place protected filter and/or tubes 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	5600 (NIOSH) [SAM Tier III]
Disulfoton sulfoxide	12 – 240 L	Filter/solid sorbent tube (OVS-2 tube: 13 mm quartz filter, XAD-2, [270 mg/140 mg])	10 days at 25°C or 30 days at 0°C.	10 days at 25°C or 30 days at 0°C.	Place filter in protective covering. Wipe outside of each sorbent tube clean using a damp, then dry cloth. Cap both ends of the tube with plastic caps. Place protected filter and/or tubes 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	5600 (NIOSH) [SAM Tier III]

Air Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Disulfoton sulfoxide oxon	12 – 240 L	Filter/solid sorbent tube (OVS-2 tube: 13 mm quartz filter, XAD-2, [270 mg/140 mg])	10 days at 25°C or 30 days at 0°C.	10 days at 25°C or 30 days at 0°C.	Place filter in protective covering. Wipe outside of each sorbent tube clean using a damp, then dry cloth. Cap both ends of the tube with plastic caps. Place protected filter and/or tubes 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	5600 (NIOSH) [SAM Tier III]
1,4-Dithiane (degradation product of HD)	Not of concern in this sample type						
EA2192 [S-2-(diisopropylamino) ethyl methyl phosphonothioic acid] (hydrolysis product of VX)[5]	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	Minimize transport and storage time. If feasible, analyze or extract immediately upon receipt at the laboratory.	Store at ≤ 4°C.	TBD[7] Air-tight container containing activated carbon.	TBD[7]	TO-10A (EPA ORD) [SAM Tier III]
Ethyl methylphosphonic acid (EMPA) (degradation product of VX)[5]	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	Minimize transport and storage time. If feasible, analyze or extract immediately upon receipt at the laboratory.	Store at ≤ 4°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	TO-10A (EPA ORD) / Footnote (8) [SAM Tier III]
Ethyldichloroarsine (ED)[5]	One to four 1 L or 6 L samples (depending on suspected concentration) each in a separate canister[6]	Specially prepared 1 L or 6 L 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)	Minimize transport and storage time. If feasible, analyze or extract immediately upon receipt at the laboratory.	None	Ship canister in container provided by laboratory.	Standard carrier shipping label AND Ethyldichloroarsine, 6.1, Poison, UN1892	TO-15 (EPA ORD) [SAM Tier III]
N-Ethyldiethanolamine (EDEA) (degradation product of HN-1)[5]	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store at ≤ 4°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	TO-10A (EPA ORD) [SAM Tier III]

Air Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Ethylene oxide	One to four 1 L or 6 L samples (depending on suspected concentration) each in a separate canister[6]	Specially prepared 1 L or 6 L 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)	Under conditions of normal use, most VOCs can be recovered from canisters near their original concentrations after storage times of up to 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)	TO-15 (EPA ORD) [SAM Tier I]
Fenamiphos[5]	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store at ≤ 4°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	TO-10A (EPA ORD) [SAM Tier II]
Fentanyl	Not of concern in this sample type						
Fluoride	Not of concern in this sample type						
Fluoroacetamide	TBD	TBD	TBD	TBD	TBD	Standard carrier shipping label	Adapted from Journal of Chromatography B, 876(1): 103-108 [SAM Tier III]
Fluoroacetic acid and fluoroacetate salts (analyze as fluoroacetate ion)[5]	60 µL (300.1) – 480 L (at 1.5 – 2.0 L/min) (S301-1)	Cellulose ester membrane filter / cleaned and rinsed glass or plastic bottles	Analyze samples within 7 days.	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 Fluoroacetic acid, 6.1, Poison, UN2642	S301-1 (NIOSH) [SAM Tier III]
2-Fluoroethanol	2 (at 5 ppm) – 35 L (flow rate = 0.01 – 0.2 L/min)	Solid sorbent tube (petroleum charcoal [100 mg/50 mg])	TBD	None	Wipe outside of each 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	2513 (NIOSH) [SAM Tier III]

Air Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Formaldehyde	1 L (at 0.25 mg/m^3) – 15 L (at 2.5 mg/m^3)	Dinitrophenylhydrazine (DNPH)-coated silica gel cartridge	At least 34 days at 5°C.	Store at 5°C.	Place end caps onto the cartridge and seal sampler in an envelope. Protect from heat. Place cartridge in double plastic bags and wrap with bubble wrap. Ship samples on ice. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Formaldehyde (concentration dependent, refer to 40 CFR 172.101 for more information).	2016 (NIOSH) [SAM Tier I]
Gasoline Range Organics	Not of concern in this sample type						
Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	Not of concern in this sample type						
Hexamethylene triperoxidediamine	Not of concern in this sample type						
Hydrogen bromide	3 – 100 L	Solid sorbent tube (washed silica gel [400 mg/200 mg] with glass fiber filter plug)	At least 21 days at 25°C.	Store at 25°C.	Wipe outside of each 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 bromide, 2.3, Poisonous gas, UN1048	7903 (NIOSH) [SAM Tier I]
Hydrogen chloride	3 – 100 L	Solid sorbent tube (washed silica gel [400 mg/200 mg] with glass fiber filter plug)	At least 21 days at 25°C.	Store at 25°C.	Wipe outside of each 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 chloride, 2.3, Poisonous gas, UN1050	7903 (NIOSH) [SAM Tier I]
Hydrogen cyanide	2 – 90 L (at 5 ppm)	Solid sorbent tube (soda lime [600 mg/200 mg])	At least 21 days at 25°C.	Store at 25°C.	Wipe outside of each 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	6010 (NIOSH) [SAM Tier I]
Hydrogen fluoride	3 – 100 L	Solid sorbent tube (washed silica gel [400 mg/200 mg] with glass fiber filter plug)	At least 21 days at 25°C.	Store at 25°C.	Wipe outside of each 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 fluoride, 2.3, Poisonous gas, Corrosive, UN1052	7903 (NIOSH) [SAM Tier I]
Hydrogen sulfide	1.2 (at 10 ppm) – 40 L	Filter and solid sorbent tube (Zefluor, 0.5 µm; coconut shell charcoal [400 mg/200 mg])	At least 21 days at 25°C.	Store at 25°C.	Place filter or cleaned 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	6013 (NIOSH) [SAM Tier I]

Air Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Isopropyl methylphosphonic acid (IMPA) (degradation product of GB)[5]	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store at ≤ 4°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	TO-10A (EPA ORD) [SAM Tier III]
Kerosene	Not of concern in this sample type						
Lead arsenate (analyze as total arsenic)	Up to 1700 m^3	Filter (quartz, silica, or cellulose fiber)	6 months	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 Lead arsenate, 6.1, Poison, UN1617	IO-3.1 / IO-3.4 / IO-3.5 (EPA ORD) [SAM Tier I]
Lewisite oxide (degradation product of Lewisite)[5] (analyze as total arsenic)	Up to 1700 m^3	Filter (quartz, silica, or cellulose fiber)	6 months	None	Wipe outside of each 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 Arsenic compounds, solid, n.o.s, 6.1, Poison, UN1557	IO-3.1 / IO-3.4 / IO-3.5 (EPA ORD) / Footnote (8) [SAM Tier I]
Mercuric chloride (analyze as total mercury)	Not of concern in this sample type						
Mercury, Total	For vapor phase Hg, the volume of air sampled is determined from the average of the flow rate measurements and the sample duration. Typical flow rate is 30 L/min for 12 – 24 hours.	Sampling pumps specially designed for trace-level pollutant sampling; vapor phase Hg collected using two gold traps in series; the two traps are attached to a PTFE filter pack.	Vapor phase Hg samples can be stored up to 1 week at 4°C. Particle-phase Hg filters can be stored indefinitely in a freezer at negative (-) 40°C.	Store vapor phase Hg samples at 4°C. Store particle-phase Hg filters indefinitely at negative (-) 40°C.	Wipe the outside of each trap clean, cap both ends. Place trap 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	IO-5 (EPA ORD) [SAM Tier I]
Methamidophos	TBD	250 mL PTFE centrifuge tube	Analyze immediately or store at negative (-) 18°C.	TBD	TBD	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783	Adapted from Journal of Chromatography A, 1154(1): 3-25 [SAM Tier III]
Methomyl	12 – 480 L	Filter/solid sorbent tube (OVS-2 tube: 13mm quartz fiber filter, XAD-2 [270mg/140 mg])	Stable 30 days at negative (-) 12°C or at least 7 days at 24°C.	Store refrigerated and tightly sealed. Analyze at room temperature.	Place filter in protective covering. Wipe outside of each sorbent tube clean using a damp, then dry cloth. Cap both ends of the tube with plastic caps. Place protected filter and/or tubes 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	5601 (NIOSH) [SAM Tier I]

Air Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Methoxyethyl mercuric acetate (analyze as total mercury)[5]	For vapor phase Hg, the volume of air sampled is determined from the average of the flow rate measurements and the sample duration. Typical flow rate of 30 L/min for 12 – 24 hours.	Sampling pumps specially designed for trace-level pollutant sampling; vapor phase Hg collected using two gold traps in series; the two traps are attached to a PTFE filter pack.	Vapor phase Hg samples can be stored up to 1 week at 4°C. Particle-phase Hg filters can be stored indefinitely in a freezer at negative (-) 40°C.	Store vapor phase Hg samples at 4°C. Store particle-phase Hg filters indefinitely at negative (-) 40°C.	Wipe the outside of each trap clean, cap both ends. Place trap 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	IO-5 (EPA ORD) [SAM Tier I]
Methyl acrylonitrile	120 L (flow rate = 1 L/min)	Filter/solid sorbent tube (OVS-7 tube: 13mm quartz fiber filter, XAD-7 [270 mg/140 mg])	Stable at least 4 days at temperatures up to 45°C.	None	Place filter in protective covering. Wipe outside of each sorbent tube clean using a damp, then dry cloth. Cap both ends of the tube with plastic caps. Place protected filter and/or tubes in double plastic bags, and wrap with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Methyl acryonitrile, 3.0, Flammable Liquid, 6.1, Poison, UN3079	PV2004 (OSHA) [SAM Tier III]
Methyl fluoroacetate (analyze as fluoroacetate ion)[5]	Up to 480 L (flow rate = 1.5 – 2.0 L/min)	Cellulose ester membrane filter/cleaned and rinsed glass or plastic bottles	Analyze samples within 7 days.	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 Fluoroacetic acid, 6.1, Poison, UN2642	S301-1 (NIOSH) [SAM Tier III]
Methyl hydrazine	3 (at 0.2 ppm) – 20 L	Bubbler (0.1 M hydrochloric acid)	At least 5 days at 25°C.	Store at 25°C.	Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film. Wrap each glass container with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Methyl hydrazine, 6.1, Poison, UN1244	3510 (NIOSH) [SAM Tier I]
Methyl isocyanate	15 L (flow rate = 0.05 L/min)	Solid sorbent tube (XAD-7 tubes coated with 0.03 mg of 1-(2-pyridyl)piperazine [1-2PP])	Can be stored at room temperature or refrigerated for up to 18 days.	Store at reduced temperature out of sunlight until analysis.	Wipe outside of each container clean using a damp, then dry cloth. Cap ends of tube and wrap with OSHA seal. Seal the container with non-reactive tape or film. Wrap each glass container with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Methyl hydrazine, 6.1, Poison, UN2480	OSHA 54 [SAM Tier I]
Methyl paraoxon	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store at ≤ 4°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	TO-10A (EPA ORD) [SAM Tier III]

Air Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Methyl parathion	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store at ≤ 4°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	TO-10A (EPA ORD) [SAM Tier I]
Methylamine	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	TBD	TBD	Wipe outside of each container clean using a damp, then dry cloth. Cap ends of tube and wrap with OSHA seal. Seal the container with non-reactive tape or film. Wrap each glass container with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND, Methylamine, anhydrous, 2.1, Flammable gas, UN1061	OSHA 40 [SAM Tier I]
N-Methyl diethanolamine (MDEA) (degradation product of HN-2)[5]	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store at ≤ 4°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	TO-10A (EPA ORD) [SAM Tier III]
Methylphosphonic acid (MPA) (degradation product of VX, GB, & GD)[5]	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store at ≤ 4°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	TO-10A (EPA ORD) [SAM Tier III]
Mevinphos	240 – 7200 L (at 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store at ≤ 4°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	TO-10A (EPA ORD) [SAM Tier II]
Monocrotophos	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store at ≤ 4°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	TO-10A (EPA ORD) [SAM Tier III]
Nicotine compounds (analyze as nicotine)	Not of concern in this sample type						
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	Not of concern in this sample type						
Osmium tetraoxide (analyze for total osmium)[5]	TBD	Filter (quartz, silica or cellulose fiber)	TBD	TBD	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	IO-3.1 / IO-3.4 (EPA ORD) [SAM Tier II]

Air Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Oxamyl	240 – 480 L	Filter/solid sorbent tube (OVS-2 tube: 13mm quartz fiber filter, XAD-2 [270mg/140 mg])	Stable 30 days at negative (-) 12°C or at least 7 days at 24°C.	Store refrigerated and tightly sealed. Analyze at room temperature.	Place filter in protective covering. Wipe outside of each sorbent tube clean using a damp, then dry cloth. Cap both ends of the tube with plastic caps. Place protected filter and/or tubes 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	5601 (NIOSH) [SAM Tier I]
Paraoxon	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store at ≤ 4°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	TO-10A (EPA ORD) [SAM Tier III]
Paraquat	Not of concern in this sample type						
Parathion	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store at ≤ 4°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	TO-10A (EPA ORD) [SAM Tier III]
Pentaerythritol tetranitrate (PETN)	Not of concern in this sample type						
Phencyclidine[5]	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store at ≤ 4°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	TO-10A (EPA ORD) [SAM Tier II]
Phorate	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store at ≤ 4°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	TO-10A (EPA ORD) [SAM Tier II]
Phorate sulfone	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store at ≤ 4°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	TO-10A (EPA ORD) [SAM Tier III]

Air Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Phorate sulfone oxon	240-7200 L (flow rate = 1-5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store at ≤ 4°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	TO-10A (EPA ORD) [SAM Tier III]
Phorate sulfoxide	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store at ≤ 4°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	TO-10A (EPA ORD) [SAM Tier III]
Phorate sulfoxide oxon	240-7200 L (flow rate = 1-5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store at ≤ 4°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	TO-10A (EPA ORD) [SAM Tier III]
Phosgene	240 L (flow rate = 1 L/min)	4-mm i.d. × 6-mm o.d. × 11-cm long silane-treated glass tubes packed with 150 mg/75 mg of pretreated XAD-2 adsorbent coated with 2-HMP (2-[hydroxymethyl] piperidine)	Can be stored at ambient temperature for up to 19 days. Desorbed samples remain stable for at least 16 hours.	Store at ambient temperature.	Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film. Wrap each glass container with bubble wrap. Pack samples as described in Footnote (4). Air-tight container containing activated carbon.	Standard carrier shipping label AND Phosgene, 2.3, Poisonous gas, UN1076	OSHA 61 / Footnote (8) [SAM Tier I]
Phosphamidon	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store at ≤ 4°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	TO-10A (EPA ORD) [SAM Tier II]
Phosphine	1 (at 0.3 ppm) – 16 L	Sorbent tube ($Hg(CN)_2$ coated silica gel [300 mg/150 mg])	7 days at 25°C.	Store at room temperature.	Wipe outside of each 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	6002 (NIOSH) [SAM Tier I]
Phosphorus trichloride	11 (at 0.5 ppm) – 100 L	Bubbler (15 mL H_2O)	TBD	TBD	Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reactive tape or film. Wrap each glass container with bubble wrap. Pack samples as described in Footnote (4). Air-tight container containing activated carbon.	Standard carrier shipping label AND Phosphorus trichloride, 6.1, Poison, UN1809	6402 (NIOSH) / Footnote (8) [SAM Tier I]

Air Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Pinacolyl methyl phosphonic acid (PMPA) (degradation product of GD)[5]	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store at ≤ 4°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	TO-10A (EPA ORD) [SAM Tier III]
Propylene oxide[5]	0.5 (at 100 ppm) – 5 L	Solid sorbent tube (coconut shell charcoal [100 mg/50 mg])	TBD	Refrigerate	Wipe outside of each 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.	1612 (NIOSH) [SAM Tier I]
Sodium arsenite (analyze as total arsenic)[5]	Up to 1700 m^3	Filter (quartz, silica, or cellulose fiber)	6 months	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 Sodium arsenite, solid, 6.1, Poison, UN2027	IO-3.1 / IO-3.4 / IO-3.5 (EPA ORD) [SAM Tier I]
Sodium azide (analyze as azide ion)	5 L (flow rate = 1 L/min)	Filter / Sorbent tube (PVC or quartz filter with silica coated sorbent [150 mg/75 mg])	Analyze samples stored at room temperature within 10 days.	Refrigerate when not in transit.	TBD	Standard carrier shipping label AND Sodium azide, 6.1, Poison, UN1687	ID-211 (OSHA) [SAM Tier I]
Strychnine	Not of concern in this sample type						
Tetraethyl pyrophosphate[5] (TEPP)	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store at ≤ 4°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	TO-10A (EPA ORD) [SAM Tier II]
Tetramethylene-disulfotetramine[5] (TETS)	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store at ≤ 4°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	TO-10A (EPA ORD) [SAM Tier II]
Thallium sulfate (analyze as total thallium)	Up to 1700 m^3	Filter (quartz, silica, or cellulose fiber)	6 months	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 Thallium compounds n.o.s, 6.1, Poison, UN1707	IO-3.1 / IO-3.4 / IO-3.5 (EPA ORD) [SAM Tier I]
Thiodiglycol (TDG) (degradation product of HD)[5]	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store at ≤ 4°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	TO-10A (EPA ORD) [SAM Tier III]

Air Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Thiofanox	12 – 240 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])	TBD	Store refrigerated and tightly sealed. Analyze at room temperature.	Place filter in protective covering. Wipe outside of each sorbent tube clean using a damp, then dry cloth. Cap both ends of the tube with plastic caps. Place protected filter and/or tubes 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	5601 (NIOSH) [SAM Tier III]
1,4-Thioxane (degradation product of HD)	Not of concern in this sample type						
Titanium tetrachloride (analyze as total Titanium)	Not of concern in this sample type						
Triethanolamine (TEA) (degradation product of HN-3)[5]	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store at ≤ 4°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 Ethanolamine solutions, 8, Corrosive, UN2491	TO-10A (EPA ORD) [SAM Tier III]
Trimethyl phosphite[5]	240 – 7200 L (flow rate = 1 – 5 L/min)	Sorbent cartridge containing PUF or PUF in combination with other solid sorbent	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store at ≤ 4°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	TO-10A (EPA ORD) [SAM Tier III]
1,3,5-Trinitrobenzene (1,3,5-TNB)	Not of concern in this sample type						
2,4,6-Trinitrotoluene (2,4,6-TNT)	Not of concern in this sample type						
Vanadium pentoxide (analyze as total vanadium)	Up to 1700 m^3	Filter (quartz, silica, or cellulose fiber)	6 months	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 Vanadium pentoxide, 6.1, Poison, UN2862	IO-3.1 / IO-3.4 / IO-3.5 (EPA ORD) [SAM Tier I]
White phosphorus	5 L (at 0.1 mg/m^3) – 100 L	Solid sorbent tube (Tenax GC [100 mg/50 mg])	7 days at 25°C.	None	Wipe outside of each 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	7905 (NIOSH) [SAM Tier I]

Aqueous/Liquid Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Acephate	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Analyze samples within 7 days of collection.	Store at 4 (±2)°C.	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018	Adapted from Chromatographia, 63(5/6): 223-237 [SAM Tier II]
Acrylamide	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Acrylamide solution, 6.1, Poison, UN3426	Ch.4 / 8316 (EPA SW-846) [SAM Tier II]
Acrylonitrile	40 - 160 mL	Screw cap vials equipped with a PTFE-lined silicone septum	Analyze samples within 14 days of collection.	Store samples at ≤ 4°C until analysis. The sample storage area must be free of organic solvent vapors and direct or intense light.	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4). The use of the methyl silicone coated packing is recommended, but not mandatory.	Standard carrier shipping label AND Acrylonitrile, stabilized, 3, Flammable liquid, 6.1, Poison, UN1093	524.2 (EPA OW) [SAM Tier II]
Aldicarb (Temik)	25 mL	Pre-cleaned amber glass bottles with PTFE-lined caps demonstrated to be free of interferences	Analyze samples within 14 days of collection.	Store between 0°C and 6°C.	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbamate pesticides, liquid, toxic, 6.1, Poison, UN2992	D7645-10 (ASTM) [II]
Aldicarb sulfone	≥ 25 mL	Pre-cleaned amber glass bottles with PTFE-lined caps demonstrated to be free of interferences. All samples are acidified with glacial acetic acid to pH ≥ 3.8 upon collection.	Analyze samples within 14 days of collection.	Store between 0°C and 6°C .	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbamate pesticides, liquid, toxic, 6.1, Poison, UN2992	D7645-10 (ASTM) [SAM Tier II]
Aldicarb sulfoxide	≥ 25 mL	Pre-cleaned amber glass bottles with PTFE-lined caps demonstrated to be free of interferences. All samples are acidified with glacial acetic acid to pH ≥ 3.8 upon collection.	Analyze samples within 14 days of collection.	Store between 0°C and 6°C.	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbamate pesticides, liquid, toxic, 6.1, Poison, UN2992	D7645-10 (ASTM) [SAM Tier II]

Aqueous/Liquid Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Allyl alcohol	40 – 160 mL (one to four VOA vials)	40 mL VOA glass screw-cap vials with PTFE septa	14 days	Cool to 4°C and adjust to pH < 2 with H_2SO_4, HCl, or solid $NaHSO_4$. Store samples in capped vials, with no headspace in an area free of solvent fumes. Add sodium thiosulfate to remove residual chlorine from treated wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. 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. See Footnote (10) when bisulfate is used.	Ch. 4 / 5030C / 8260C (EPA SW-846) [SAM Tier II]
4-Aminopyridine	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Aminopyridines, 6.1, Poison, UN2671	Ch.4 / 3535A / 8330B (EPA SW-846) [SAM Tier III]
Ammonia	0.5 – 2 L	Polyethylene or glass container	Analyze within 28 days. Analyze immediately if not preserved.	Acidify to pH < 2 with H_2SO_4 and refrigerate.	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles 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) [SAM Tier I]
Ammonium metavanadate (analyze as total vanadium)	120 – 480 mL	Plastic or glass (special cleaning needed)[11]	Preserve with acid within 2 weeks of collection; can be held 6 months with acidification. If not acid preserved, analyze immediately.	Acidify to pH < 2 with nitric acid and store at 4°C. If arsenic species are to be determined, remove unpreserved aliquot prior to sample preservation.[12]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles 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) [SAM Tier I]
Arsenic, Total	120 – 480 mL	Plastic or glass (special cleaning needed)[11]	Preserve with acid within 2 weeks of collection; can be held 6 months with acidification. If not acid preserved, analyze immediately.	Acidify to pH < 2 with nitric acid and store at 4°C. If arsenic species are to be determined, remove unpreserved aliquot prior to sample preservation.[12]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles 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) [SAM Tier I]
Arsenic trioxide (analyze as total arsenic)	120 – 480 mL	Plastic or glass (special cleaning needed)[11]	Preserve with acid within 2 weeks of collection; can be held 6 months with acidification. If not acid preserved, analyze immediately.	Acidify to pH < 2 with nitric acid and store at 4°C. If arsenic species are to be determined, remove unpreserved aliquot prior to sample preservation.[12]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles 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) [SAM Tier I]

Aqueous/Liquid Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Arsine[5] (analyze as total arsenic in non-air sample)	120 – 480 mL	Plastic or glass (special cleaning needed)[11]	Minimize transport and storage time; if feasible, analyze or extract immediately upon receipt at the laboratory.	Acidify to pH < 2 with nitric acid and store at 4°C. If arsenic species are to be determined, remove unpreserved aliquot prior to sample preservation.[12]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Arsine, 2.3 (2.1), Poisonous gas, UN2189	200.7 / 200.8 (EPA OW) [SAM Tier I]
Asbestos	Not of concern in this sample type						
Boron trifluoride	Not of concern in this sample type						
Brodifacoum	40 mL	Pre-cleaned amber glass vials with PTFE-lined caps demonstrated to be free of interferences	Analyze samples within 14 days of collection.	Water samples are collected unpreserved, and stored between 0°C and 6°C. Chlorinated water samples are dechlorinated with ascorbic acid; 10 mg of ascorbic acid is added to each 40 mL vial prior to water collection.	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Coumarin derivative pesticides, liquid, toxic, 6.1, Poison, UN3023	D7644-10 (ASTM) [SAM Tier II]
Bromadiolone[5]	40 mL	Pre-cleaned amber glass vials with PTFE-lined caps demonstrated to be free of interferences	Analyze samples within 14 days of collection.	Water samples are collected unpreserved, and stored between 0°C and 6°C. Chlorinated water samples are dechlorinated with ascorbic acid; 10 mg of ascorbic acid is added to each 40 mL vial prior to water collection.	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Coumarin derivative pesticides, liquid, toxic, 6.1, Poison, UN3023	D7644-10 (ASTM) [SAM Tier II]
Calcium arsenate (analyze as total arsenic)	120 – 480 mL	Plastic or glass (special cleaning needed)[11]	Preserve with acid within 2 weeks of collection; can be held 6 months with acidification. If not acid preserved, analyze immediately.	Acidify to pH < 2 with nitric acid and store at 4°C. If arsenic species are to be determined, remove unpreserved aliquot prior to sample preservation.[12]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles 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) [SAM Tier I]
Carbofuran (Furadan)	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Analyze samples within 14 days of collection.	Store between 0°C and 6°C.	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbamate pesticides, liquid, toxic, 6.1, Poison, UN2992	D7645-10 (ASTM) [SAM Tier II]

Aqueous/Liquid Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Carbon disulfide	40 – 160 mL (One to four VOA vials)	40 mL VOA glass screw-cap vials with PTFE septa	14 days	Cool to 4°C and adjust to pH < 2 with H_2SO_4, HCl, or solid $NaHSO_4$. Store samples in capped vials, with no headspace in an area free of solvent fumes. Add sodium thiosulfate to remove residual chlorine from treated wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbon disulfide, 3, Flammable liquid, UN1131. See Footnote (10) when bisulfate is used.	Ch. 4 / 5030C / 8260C (EPA SW-846) [SAM Tier I]
Carfentanil	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label	Ch. 4 / 3520C / 3535A / 8321B (EPA SW-846) [SAM Tier III]
Chlorfenvinphos	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018	Ch. 4 / 3520C / 3535A / 8270D (EPA SW-846) [SAM Tier I]
Chlorine	0.5 – 2 L	Amber glass bottle	Analyze immediately.	Avoid excessive light and agitation. Do not store samples.	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles 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) [SAM Tier I]
2-Chloroethanol	40 – 160 mL (one to four VOA vials)	40 mL VOA glass screw-cap vials with PTFE septa	14 days	Cool to 4°C and adjust to pH < 2 with H_2SO_4, HCl, or solid $NaHSO_4$. Store samples in capped vials, with no headspace in an area free of solvent fumes. Add sodium thiosulfate to remove residual chlorine from treated wastewater samples.[9]	Wipe outside of each vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film. Wrap glass vials with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label. See Footnote (10) when bisulfate is used.	Ch. 4 / 5030C / 8260C (EPA SW-846) [SAM Tier II]
3-Chloro-1,2-propanediol[5]	5 mL	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Samples can be stored for 0 –15 days as long as the pH is adjusted to ≤8.	TBD	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label	Journal of Chromatography A 866(2000) 65-77 [SAM Tier II]

Aqueous/Liquid Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Chloropicrin[5]	120 – 240 mL	60 mL screw cap glass vials with PTFE-lined septum or lid	Extract all samples within 14 days of collection and analyze within 14 days following extraction.	Cool to 4°C and store extracts at < negative (-) 10°C until analysis.	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4). (Air-tight container containing activated carbon)	Standard carrier shipping label AND Chloropicrin, 6.1, Poison, UN1580	551.1 (EPA OW) [SAM Tier I]
Chlorpyrifos	40 – 160 mL (One to four VOA vials)	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018	Ch.4 / 3511 / 8270D (EPA SW-846) [SAM Tier II]
Chlorpyrifos oxon	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018	Ch.4 / 3520C / 3535A / 8270D (EPA SW-846) [SAM Tier III]
Crimidine[5]	40 – 160 mL (One to four VOA vials)	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label	Ch.4 / 3511 / 8270D (EPA SW-846) [SAM Tier II]
Cyanide, Amenable to chlorination	1 – 4 L	Glass or polyethylene bottle (1 L size)	14 days	Add NaOH until pH ≥ 12 at time of collection; cool to 4°C.	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Cyanide solutions n.o.s, 6.1, Poison, UN1935	3135.2l (EPA Regional Lab) [SAM Tier I]
Cyanide, Total	0.5 – 2 L	Glass or polyethylene bottle	12 days from Validated Time of Sample Receipt (VTSR).	Protect from light and cool to 4 (±2)°C from time of receipt until 60 days after delivery of a complete, reconciled data package. Add 0.6 g of asorbic acid for each liter of sample volume.	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Cyanide solutions n.o.s, 6.1, Poison, UN1580	ISM 01.3 CN (EPA CLP) [SAM Tier I]

Aqueous/Liquid Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Cyanogen chloride[5]	80 – 120 mL Collect in duplicate or triplicate in nominal 40 mL vials	40 mL VOA glass screw-cap vials with PTFE septa and threaded polypyrene caps	Samples may be analyzed within 2 weeks. Analyze as soon as possible after collection.	Cool to 4°C and adjust to pH < 2 with H_2SO_4, HCl, or solid $NaHSO_4$. Store samples in capped vials, with no headspace in an area free of solvent fumes. Add sodium thiosulfate to remove residual chlorine from treated wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass containers with bubble wrap. Pack samples as described in Footnote (4). (Air-tight container containing activated carbon)	Standard carrier shipping label AND Cyanogen chloride, 2.3, Poisonous gas, UN1589. See Footnote (10) when bisulfate is used.	Encyclopedia of Anal. Chem. 2006 DO:10.1002/9780470027318.a0809 [SAM Tier II]
1,2-Dichloroethane (degradation product of HD)	40 – 160 mL (one to four VOA vials)	40 mL VOA glass screw-cap vials with PTFE septa	14 days	Cool to 4°C and adjust to pH < 2 with H_2SO_4, HCl, or solid $NaHSO_4$. Store samples in capped vials, with no headspace in an area free of solvent fumes. Add sodium thiosulfate to remove residual chlorine from treated wastewater samples.[9]	Wipe outside of each vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film. Wrap glass vials with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Ethylene dichloride. 3, Flammable liquid, 6, Poison, UN1184. See Footnote (10) when bisulfate is used.	Ch. 4 / 5030C / 8260C (EPA SW-846) [SAM Tier I]
Dichlorvos	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018	Ch. 4 / 3535A / 8270D (EPA SW-846) [SAM Tier I]
Dicrotophos	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018	Ch. 4 / 3535A / 8270D (EPA SW-846) [SAM Tier I]
Diesel Range Organics	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label	Ch. 4 / 3520C / 3535A / 8015C (EPA SW-846) [SAM Tier I]

Aqueous/Liquid Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Diisopropyl methylphosphonate (DIMP) (degradation product of GB)[5]	25 mL	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Analyze samples within 1 day of collection.	Store between 0°C and °C.	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label	D7597-09 (ASTM) [SAM Tier II]
Dimethylphosphite[5]	Not of concern in this sample type						
Dimethylphosphor amidic acid (degradation product GA)[5]	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles 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	Ch. 4 / 3535A / 8321B (EPA SW-846) [SAM Tier III]
Diphacinone	40 mL	Pre-cleaned amber glass vials with PTFE-lined caps demonstrated to be free of interferences	Analyze samples within 14 days of collection.	Water samples are collected unpreserved, and stored between 0°C and 6°C. Chlorinated water samples are dechlorinated with ascorbic acid; 10 mg of ascorbic acid is added to each 40 mL vial prior to water collection.	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Coumarin derivative pesticides, liquid, toxic, 6.1, Poison, UN3023	D7644-10 (ASTM) [SAM Tier II]
Disulfoton	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Extract immediately after collection and preservation and store at 4°C. Analyze extracts within 30 days.	Cool to 4°C. Add sodium sulfite to remove residual chlorine from treated wastewater samples and then adicify to pH < 2 with 6N HCl.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018	525.2 (EPA OW) [SAM Tier II]
Disulfoton sulfone oxon	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Extract immediately after collection and preservation and store at 4°C. Analyze extracts within 30 days.	Cool to 4°C. Add sodium sulfite to remove residual chlorine from treated wastewater samples and then adicify to pH < 2 with 6N HCl.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018	525.2 (EPA OW) [SAM Tier III]

Aqueous/Liquid Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Disulfoton sulfoxide	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Extract immediately after collection and preservation and store at 4°C. Analyze extracts within 30 days.	Cool to 4°C. Add sodium sulfite to remove residual chlorine from treated wastewater samples and then adicify to pH < 2 with 6N HCl.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018	525.2 (EPA OW) [SAM Tier II]
Disulfoton sulfoxide oxon	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Extract immediately after collection and preservation and store at 4°C. Analyze extracts within 30 days.	Cool to 4°C. Add sodium sulfite to remove residual chlorine from treated wastewater samples and then adicify to pH < 2 with 6N HCl.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018	525.2 (EPA OW) [SAM Tier III]
1,4-Dithiane (degradation product of HD)[5]	40 – 160 mL (One to four VOA vials)	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label	Ch. 4 / 3535A / 3511 / 8270D (EPA SW-846) [SAM Tier II]
EA2192 [S-2-(diisopropylamino) ethylmethylphosphonothioic acid] (hydrolysis product of VX)[5]	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Minimize transport and storage time; if feasible, analyze or extract immediately upon receipt at the laboratory.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	TBD.[7] Air-tight container containing activated carbon.	TBD[7]	Ch. 4 / 3535A / 8321B (EPA SW-846) / Footnote (8) [SAM Tier III]
Ethyl methylphosphonic acid (EMPA) (degradation product of VX)[5]	25 mL	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Analyze samples within 1 day of collection.	Store between 0°C and 6 °C.	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles 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	D7597-09 (ASTM) [SAM Tier II]

Aqueous/Liquid Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Ethyldichloroarsine (ED)[5]	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Minimize transport and storage time; if feasible, analyze or extract immediately upon receipt at the laboratory.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Ethyldichloroarsine, 6.1, Poison, UN1892	Ch. 4 / 3535A / 8270D (EPA SW-846) [SAM Tier III]
N-Ethyldiethanolamine (EDEA) (degradation product of HN-1)[5]	25 mL	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Analyze samples within 7 days of collection.	Store between 0°C and 6°C.	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label	D7599-09 (ASTM) [SAM Tier II]
Ethylene oxide	40 – 160 mL (one to four VOA vials)	40 mL VOA glass screw-cap vials with PTFE septa	14 days	Cool to 4°C and adjust to pH < 2 with H_2SO_4, HCl, or solid $NaHSO_4$. Store samples in capped vials, with no headspace in an area free of solvent fumes. Add sodium thiosulfate to remove residual chlorine from treated wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles 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). See Footnote (10) when bisulfate is used.	Ch. 4 / 5030C / 8260C (EPA SW-846) [SAM Tier II]
Fenamiphos[5]	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018	Ch. 4 / 3520C / 3535A / 8270D (EPA SW-846) [SAM Tier II]
Fentanyl	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label	Ch. 4 / 3520C / 3535A / 8321B (EPA SW-846) [SAM Tier II]
Fluoride	40 mL (one VOA vial)	40 mL VOA vial	28 days	None	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label	300.1, Rev 1.0 (EPA OW) [SAM Tier I]

Aqueous/Liquid Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Fluoroacetamide	TBD	TBD	TBD	TBD	TBD	Standard carrier shipping label	Adapted from Journal of Chromatography B, 876(1): 103-108 [SAM Tier II]
Fluoroacetic acid and fluoroacetate salts (analyze as fluoroacetate ion)[5]	25 mL	Pre-cleaned amber glass bottle with PTFE-lined caps demonstrated to be free of interferences	TBD	TBD	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Fluoroacetic acid, 6.1, Poison, UN2642	Adapted from J. Chrom B. 2010 (878) 1045-1050 [SAM Tier III]
2-Fluoroethanol	100 – 400 mL	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	14 days	Cool to 4°C and adjust to pH < 2 with H_2SO_4, HCl, or solid $NaHSO_4$. Store samples in capped vials, with no headspace in an area free of solvent fumes. Add sodium thiosulfate to remove residual chlorine from treated wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label	Ch. 4 / 5030C / 8260C (SW-846) [SAM Tier III]
Formaldehyde	100 – 400 mL	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Derivatized and extracted within 3 days of collection.	Refrigerate at 4°C. Preserve to pH 5.0 to minimize the formation of artifact formaldehyde.	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles 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).	Ch. 4 / 8315A (EPA SW-846) [SAM Tier I]
Gasoline Range Organics	40 – 160 mL (One to four VOA vials)	40 mL VOA glass screw-cap vials with PTFE septa	14 days	Cool to 4°C and adjust to pH < 2 with H_2SO_4, HCl, or solid $NaHSO_4$. Store samples in capped vials, with no headspace in an area free of solvent fumes. Add sodium thiosulfate to remove residual chlorine from treated wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier AND Gasoline identification set, 2.3, Poison gas, NA9035 shipping label. See Footnote (10) when bisulfate is used.	Ch. 4 / 5030C / 8015C (EPA SW-846) [SAM Tier I]
Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND RDX, 1.1, Explosive, UN0483	Ch. 4 / 3535A / 8330B (EPA SW-846) [SAM Tier I]

Aqueous/Liquid Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Hexamethylenetriperoxidediamine (HMTD)[5]	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Forbidden	Ch. 4 / 3535A / 8330B (EPA SW-846) / Analyst (2001) 126:1689-1693 [SAM Tier II]
Hydrogen bromide	Not of concern in this sample type						
Hydrogen chloride	Not of concern in this sample type						
Hydrogen cyanide[5]	Not of concern in this sample type						
Hydrogen fluoride	Not of concern in this sample type						
Hydrogen sulfide	Not of concern in this sample type						
Isopropyl methylphosphonic acid (IMPA) (degradation product of GB)[5]	25 mL	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Analyze samples within 1 day of collection.	Store between 0°C and 6 °C.	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles 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	D7597-09 (ASTM) [SAM Tier II]
Kerosene[5]	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Kerosene, 3, Flammable, UN1223. See Footnote (10) when bisulfate is used.	Ch. 4 / 5030C / 8015C (EPA SW-846) [SAM Tier I]
Lead arsenate (analyze as total arsenic)	120 – 480 mL	Plastic or glass (special cleaning needed)[11]	Preserve with acid within 2 weeks of collection; can be held 6 months with acidification. If not acid preserved, analyze immediately.	Acidify to pH < 2 with nitric acid and store at 4°C. If arsenic species are to be determined, remove unpreserved aliquot prior to sample preservation.[12]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles 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) [SAM Tier I]
Lewisite oxide (degradation product of Lewisite)[5] (analyze as total arsenic)	120 – 480 mL	Plastic or glass (special cleaning needed)[11]	Samples should be preserved with acid within 2 weeks of collection, and can be held 6 months with acidification. If not acid preserved, analyze immediately.	Acidify to pH < 2 with nitric acid and store at 4°C. If arsenic species are to be determined, remove unpreserved aliquot prior to sample preservation.[12]	Wipe outside of each 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 Arsenic compounds, liquid, n.o.s, 6.1, Poison, UN1556	200.7 / 200.8 (EPA OW) / Footnote (8) [SAM Tier I]

Aqueous/Liquid Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Mercuric chloride (analyze as total mercury)	400 mL	PTFE, plastic or glass	28 days	Acidify to pH < 2 with nitric acid. [Normally, 3 mL of (1+1) acid per liter of sample is sufficient for most ambient and drinking water samples.]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Mercuric chloride, 6.1, Poison, UN1624	245.1 (EPA OW) [SAM Tier I]
Mercury, Total	400 mL	PTFE, plastic or glass	28 days	Acidify to pH < 2 with nitric acid. [Normally, 3 mL of (1+1) acid per liter of sample is sufficient for most ambient and drinking water samples.]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Mercury, 8, Corrosive, UN2809	245.1 (EPA OW) [SAM Tier I]
Methamidophos	TBD	TBD	TBD	TBD	TBD	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018	Adapted from Chromatographia, 63(5/6): 233-237 [SAM Tier II]
Methomyl	25 mL	Pre-cleaned amber glass bottles with PTFE-lined caps demonstrated to be free of interferences	Analyze samples within 14 days of collection.	Store between 0°C and 6°C.	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbamate pesticides, liquid, toxic, 6.1, Poison, UN2992	D7645-10 (ASTM) [SAM Tier II]
Methoxyethylmercuric acetate (analyze for total mercury)[5]	400 mL	PTFE, plastic or glass	28 days	Acidify to pH < 2 with nitric acid. [Normally, 3 mL of (1+1) acid per liter of sample is sufficient for most ambient and drinking water samples.]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles 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	245.1 (EPA OW) [SAM Tier I]
Methyl acrylonitrile	1 – 4 L	40 mL to 120 mL screw cap vials each equipped with a PTFE faced silicone septum	Analyze samples within 14 days of collection.	Store samples at ≤ 4°C until analysis. The sample storage area must be free of organic solvent vapors and direct or intense light.	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film. Wrap glass vials with bubble wrap. Pack samples as described in Footnote (4). The use of the methyl silicone coated packing is recommended, but not mandatory.	Standard carrier shipping label AND Methyl acryonitrile, 3.0, Flammable Liquid, 6.1, Poison, UN3079	524.2 (EPA OW) [SAM Tier II]
Methyl fluoroacetate (analyze for fluoroacetate ion)[5]	25 mL	Pre-cleaned amber glass bottle with PTFE-lined caps demonstrated to be free of interferences	TBD	TBD	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label	J. Chrom B. 2010 (878) 1045-1050 [SAM Tier III]
Methyl hydrazine[5]	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Methyl hydrazine, 6.1, Poison, UN1244	J. Chrom. 1993 (617), 157-162 [SAM Tier II]
Methyl isocyanate	Not of concern in this sample type						

Aqueous/Liquid Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Methyl paraoxon	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018	Ch. 4 / 3535A / 8270D (EPA SW-846) [SAM Tier III]
Methyl parathion	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018	Ch. 4 / 3535A / 8270D (EPA SW-846) [SAM Tier I]
Methylamine	Not of concern in this sample type						
N-Methyldiethanolamine (MDEA) (degradation product of HN-2)[5]	25 mL	≥25 mL pre-cleaned amber glass bottles with PTFE-lined caps demonstrated to be free of interferences	Analyze samples within 7 days of collection.	Store between 0°C and 6°C.	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label	D7599-09 (ASTM) [SAM Tier II]
Methylphosphonic acid (MPA) (degradation product of VX, GB, & GD)[5]	25 mL	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Analyze samples within 1 day of collection.	Store between 0°C and 6°C.	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles 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	D7597-09 (ASTM) [SAM Tier II]
Mevinphos	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018	Ch. 4 / 3535A / 8270D (EPA SW-846) [SAM Tier I]

Aqueous/Liquid Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Monocrotophos	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018	Ch. 4 / 3535A / 8270D (EPA SW-846) [SAM Tier I]
Nicotine compounds (analyze as nicotine)	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles 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	Ch. 4 / 3535A / 8270D (EPA SW-846) [SAM Tier II]
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C and store in the dark. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label	Ch. 4 / 3535A / 8330B (EPA SW-846) [SAM Tier I]
Osmium tetraoxide (analyze as total osmium)[5]	20 – 80 mL	Glass (special cleaning needed)[11]	Analyze or digest samples as soon as possible upon receipt. Digested samples can be held up to 6 months prior to analysis.	1% Ammonium hydroxide.[12]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Osmium tetroxide, 6.1, Poison, UN2471	200.7 / 200.8 (EPA OW) [SAM Tier II]
Oxamyl	25 mL	Pre-cleaned amber glass bottles with PTFE-lined caps demonstrated to be free of interferences	Analyze samples within 14 days of collection.	Store between 0°C and 6°C.	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbamate pesticides, liquid, toxic, 6.1, Poison, UN2992	D7645-10 (ASTM) [SAM Tier II]
Paraoxon	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018	Ch. 4 / 3520C / 3535A / 8270D (SW-846) [SAM Tier III]

Aqueous/Liquid Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Paraquat	250 – 1000 mL	Polyvinylchloride (PVC) high-density or silanized amber glass bottle fitted with screw caps	Extract samples within 7 days of collection; analyze within 21 days of extraction.	Refrigerate at 4°C from time of collection until extraction. Add 100 mg/L sodium thiosulfate to samples containing residual chlorine. Keep protected from light.	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Bipyridilium pesticides, liquid, 6.1, Toxic, UN3016	549.2 (EPA OW) [SAM Tier I]
Parathion	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018	Ch. 4 / 3520C / 3535A / 8270D (SW-846) [SAM Tier I]
Pentaerythritol tetranitrate (PETN)	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C and store in the dark. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Forbidden	Ch. 4 / 3535A / 8330B (EPA SW-846) [SAM Tier I]
Phencyclidine	40 – 160 mL (One to four VOA vials)	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C and store in the dark. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label	3511 / 8270D (EPA SW-846) [SAM Tier II]
Phorate	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C and store in the dark. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018	Ch. 4 / 3535A / 8270D (EPA SW-846) [SAM Tier I]
Phorate sulfone	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018	Ch. 4 / 3535A / 8270D (EPA SW-846) [SAM Tier III]

Aqueous/Liquid Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Phorate sulfone oxon	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018	Ch. 4 / 3535A / 8270D (EPA SW-846) [SAM Tier III]
Phorate sulfoxide	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018	Ch. 4 / 3535A / 8270D (EPA SW-846) [SAM Tier III]
Phorate sulfoxide oxon	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018	Ch. 4 / 3535A / 8270D (EPA SW-846) [SAM Tier III]
Phosgene	Not of concern in this sample type						
Phosphamidon	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018	Ch. 4 / 3520C / 3535A / 8270D (EPA SW-846) [SAM Tier I]
Phosphine	Not of concern in this sample type						
Phosphorus trichloride	Not of concern in this sample type						
Pinacolyl methyl phosphonic acid (PMPA) (degradation product of GD)[5]	25 mL	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Analyze samples within 1 day of collection.	Store between 0°C and 6°C.	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles 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	D7597-09 (ASTM) [SAM Tier II]

Aqueous/Liquid Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Propylene oxide[5]	40 – 160 mL (one to four VOA vials)	40 mL VOA glass screw-cap vials with PTFE septa	14 days	Cool to 4°C and adjust to pH < 2 with H_2SO_4, HCl, or solid $NaHSO_4$. Store samples in capped vials, with no headspace in an area free of solvent fumes. Add sodium thiosulfate to remove residual chlorine from treated wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Propylene oxide, 3, Flammable liquid, UN1280. See Footnote (10) when bisulfate is used.	Ch. 4 / 5030C / 8260C (EPA SW-846) [SAM Tier II]
Sodium arsenite (analyze as total arsenic)[5]	120 – 480 mL	Plastic or glass (special cleaning needed)[11]	Samples should be preserved with acid within 2 weeks of collection, and can be held 6 months with acidification. If not acid preserved, analyze immediately.	Acidify to pH < 2 with nitric acid and store at 4°C. If arsenic species are to be determined, remove unpreserved aliquot prior to sample preservation.[12]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles 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) [SAM Tier I]
Sodium azide (analyze as azide ion)	40 mL (one VOA vial)	40 mL VOA vial	28 days	None	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Sodium azide, 6.1, Poison, UN1687	Adapted from J. of Forensic Sciences, 43(1): 200-202 / 300.1, Rev 1.0 (EPA OW) [SAM Tier II]
Strychnine	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Strychnine, 6.1, Poison, UN1692	Ch. 4 / 3535A / 8270D (EPA SW-846) [SAM Tier I]
Tetraethyl pyrophosphate[5] (TEPP)	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018	Ch. 4 / 3511 / 8270D (EPA SW-846) [SAM Tier II]

Aqueous/Liquid Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Tetramethylene-disulfotetramine[5] (TETS)	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles 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	Ch. 4 / 3511 / 8270D (EPA SW-846) [SAM Tier II]
Thallium sulfate (analyze as total thallium)	120 – 480 mL	Plastic or glass (special cleaning needed)[11]	Samples should be preserved with acid within 2 weeks of collection, and can be held 6 months with acidification. If not acid preserved, analyze immediately.	Acidify to pH < 2 with nitric acid and store at 4°C. If arsenic species are to be determined, remove unpreserved aliquot prior to sample preservation.[12]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles 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) [SAM Tier I]
Thiodiglycol (TDG) (degradation product of HD)[5]	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Analyze samples within 7 days of collection.	Store at 4 (±2)°C.	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Aviation regulated liquid, n.o.s, UN3334	D7598-09 (ASTM) [SAM Tier II]
Thiofanox	≥ 25 mL	Pre-cleaned amber glass bottles with PTFE-lined caps demonstrated to be free of interferences. All samples are acidified with glacial acetic acid to pH ≥ 3.8 upon collection.	Analyze samples within 14 days of collection.	Store between 0°C and 6°C.	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbamate pesticides, liquid, toxic, 6.1, Poison, UN2992	D7645-10 (ASTM) [SAM Tier II]
1,4-Thioxane (degradation product of HD)[5]	40 – 160 mL (One to four VOA vials)	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Flammable Liquids, n.o.s, 3, Flammable, UN1993	[SAM Tier II]
Titanium tetrachloride (analyze as total titanium)	Not of concern in this sample type						

Aqueous/Liquid Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Triethanolamine (TEA) (degradation product of HN-3)[5]	25 mL	≥25 mL pre-cleaned amber glass bottles with PTFE-lined caps demonstrated to be free of interferences	Analyze samples within 7 days of collection.	Store between 0°C and 6°C.	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Ethanolamine solutions, 8, Corrosive, UN2491	D7599-09 (ASTM) [SAM Tier II]
Trimethyl phosphite[5]	Not of concern in this sample type						
1,3,5-Trinitrobenzene (1,3,5-TNB)	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C and store in the dark. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Trinitrobenzene and trinitrotoluene mixtures, 1.1, Explosive, UN0388	Ch. 4 / 3535A / 8330B (EPA SW-846) [SAM Tier I]
2,4,6-Trinitrotoluene (2,4,6-TNT)	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent-rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C and store in the dark. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Trinitrobenzene and trinitrotoluene mixtures, 1.1, Explosive, UN0388	Ch. 4 / 3535A / 8330B (EPA SW-846) [SAM Tier I]
Vanadium pentoxide (analyze as total vanadium)	120 – 480 mL	Plastic or glass (special cleaning needed)[11]	Samples should be preserved with acid within 2 weeks of collection, and can be held 6 months with acidification. If not acid preserved, analyze immediately.	Acidify to pH < 2 with nitric acid and store at 4°C. If arsenic species are to be determined, remove unpreserved aliquot prior to sample preservation.[12]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles 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) [SAM Tier I]
White phosphorus	0.5 – 2 L	Wide-mouth glass or PTFE container with PTFE-lined septum or lid; fill to overflowing to eliminate headspace	Extracts with isooctane should be analyzed within 30 days.	Cool to 4°C and store in the dark.	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles 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) [SAM Tier I]

Drinking Water Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Acephate	40 mL	Amber glass bottles (40 mL or larger) fitted with PTFE-lined screw caps	Analyze samples within 14 days of collection.	Add 400 µL of ammonium acetate concentrated stock and 80 µL of concentrated sodium omadine stock. Samples must not exceed 10 °C during the first 48 hours after collection. Store at or below 6 °C (but not frozen) until analysis.	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles 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) [SAM Tier I]
Acrylamide	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from treated drinking water samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Acrylamide solution, 6.1, Poison, UN3426	Ch. 4 / 8316 (EPA SW-846) [SAM Tier II]
Acrylonitrile	25 – 100 mL	40-mL to 120-mL screw cap vials each equipped with a PTFE-lined silicone septum (Special cleaning required).[13] Fill sample bottles to overflowing.	14 days	If residual chlorine is present, add ~25 mg of ascorbic acid per 40 mL of sample to the sample bottle before filling. Adjust to pH < 2 at time of collection, but after dechlorination, with 2 drops of 1:1 HCl for each 40 mL of sample. Store samples at ≤ 4°C until analysis. The sample storage area must be free of organic solvent vapors and direct or intense light.	Wipe outside of each vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film. Wrap glass vials with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbon disulfide, 3, Flammable liquid, UN1131. See Footnote (10) when bisulfate is used.	524.2 (EPA OW) [SAM Tier II]
Aldicarb (Temik)	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	28 days	Preserve with potassium dihydrogen citrate and sodium thiosulfate (if residual chlorine is present)[9]. After collecting the sample, cap carefully, and agitate for 1 minute. Store at ≤ 6°C and protect from light until analysis. Do not freeze.	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles 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) [SAM Tier I]
Aldicarb sulfone	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	28 days	Preserve with potassium dihydrogen citrate and sodium thiosulfate (if residual chlorine is present)[9]. After collecting the sample, cap carefully, and agitate for 1 minute. Store at ≤ 6°C and protect from light until analysis. Do not freeze.	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles 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) [SAM Tier I]

Drinking Water Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Aldicarb sulfoxide	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	28 days	Preserve with potassium dihydrogen citrate and sodium thiosulfate (if residual chlorine is present)[9]. After collecting the sample, cap carefully, and agitate for 1 minute. Store at ≤ 6°C and protect from light until analysis. Do not freeze.	Wipe outside of each 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 Carbamate pesticides, liquid, toxic, 6.1, Poison, UN2992	531.2 (EPA OW) [SAM Tier I]
Allyl alcohol	40 – 160 mL (one to four VOA vials)	40 mL VOA glass screw-cap vials with PTFE septa	14 days	Cool to 4°C and adjust to pH < 2 with H_2SO_4, HCl, or solid $NaHSO_4$. Store samples in capped vials, with no headspace in an area free of solvent fumes. Add sodium thiosulfate to remove residual chlorine from treated drinking water samples.[9]	Wipe outside of each vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film. Wrap glass vials with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Allyl alcohol, 3, Flammable liquid, 6.1, Poison, UN1098. See Footnote (10) when bisulfate is used.	Ch. 4 / 5030C / 8260C (EPA SW-846) [SAM Tier II]
4-Aminopyridine	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from treated drinking water samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Aminopyridines, 6.1, Poison, UN2671	Ch. 4 / 3535A / 8330B (EPA SW-846) [SAM Tier III]
Ammonia	400 – 1600 mL	Plastic or glass bottles	28 days	Cool to 4°C and adjust to pH < 2 with H_2SO_4. Add sodium thiosulfate to remove residual chlorine from treated drinking water samples.[9]	Wipe outside of each 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 (if greater than 10% ammonia by volume) Ammonia solution, 8, Corrosive, UN2672	350.1 (EPA OW) [SAM Tier I]
Ammonium metavanadate (analyze as total vanadium)	120 – 480 mL	Plastic or glass (special cleaning needed)[11]	Preserve with acid within 2 weeks of collection; can be held 6 months with acidification. If not acid preserved, analyze immediately.	Acidify to pH < 2 with nitric acid and store at 4°C. If arsenic species are to be determined, remove unpreserved aliquot prior to sample preservation.[12]	Wipe outside of each 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 Ammonium metavanadate, 6.1, Poison, UN2859	200.7 / 200.8 (EPA OW) [SAM Tier I]

Drinking Water Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Arsenic, Total	120 – 480 mL	Plastic or glass (special cleaning needed)[11]	Preserve with acid within 2 weeks of collection. Samples can be held 6 months with acidification; if not acid preserved, analyze immediately.	Acidify to pH < 2 with nitric acid and store at 4°C. If arsenic species are to be determined, remove unpreserved aliquot prior to sample preservation.[12]	Wipe outside of each 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 Arsenic, 6.1, Poison, UN1558	200.7 / 200.8 (EPA OW) [SAM Tier I]
Arsenic trioxide (analyze as total arsenic)	120 – 480 mL	Plastic or glass (special cleaning needed)[11]	Preserve with acid within 2 weeks of collection; can be held 6 months with acidification. If not acid preserved, analyze immediately.	Acidify to pH < 2 with nitric acid and store at 4°C. If arsenic species are to be determined, remove unpreserved aliquot prior to sample preservation.[12]	Wipe outside of each 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 Arsenic trioxide, 6.1, Poison, UN1561	200.7 / 200.8 (EPA OW) [SAM Tier I]
Arsine[5] (analyze as total arsenic in non-air samples)	120 – 480 mL	Plastic or glass (special cleaning needed)[11]	Minimize transport and storage time; if feasible, analyze or extract immediately upon receipt at the laboratory.	Acidify to pH < 2 with nitric acid and store at 4°C. If arsenic species are to be determined, remove unpreserved aliquot prior to sample preservation.[12]	Wipe outside of each 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 Arsine, 2.3 (2.1), Poisonous gas, UN2189	200.7 / 200.8 (EPA OW) [SAM Tier I]
Asbestos	Not of concern in this sample type						
Boron trifluoride	Not of concern in this sample type						
Brodifacoum	40 mL with a 50 mL final volume	Pre-cleaned amber glass vials with PTFE-lined caps demonstrated to be free of interferences	Analyze the sample within 14 days of collection.	Store in laboratory between 0°C and 6°C. Chlorinated drinking water samples are dechlorinated with ascorbic acid; 10 mg of ascorbic acid is added to each 40 mL vial prior to water collection.	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Coumarin derivative pesticides, liquid, toxic, 6.1, Poison, UN3023	D7644-10 (ASTM) [SAM Tier II]

Drinking Water Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Bromadiolone[5]	40 mL with a 50 mL final volume	Pre-cleaned amber glass vials with PTFE-lined caps demonstrated to be free of interferences	Analyze the sample within 14 days of collection.	Store in laboratory between 0°C and 6°C. Chlorinated drinking water samples are dechlorinated with ascorbic acid; 10 mg of ascorbic acid is added to each 40 mL vial prior to water collection.	Wipe outside of each 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	D7644-10 (ASTM) [SAM Tier II]
Calcium arsenate (analyze as total arsenic)	120 – 480 mL	Plastic or glass (special cleaning needed)[11]	Preserve with acid within 2 weeks of collection; can be held 6 months with acidification. If not acid preserved, analyze immediately.	Acidify to pH < 2 with nitric acid and store at 4°C. If arsenic species are to be determined, remove unpreserved aliquot prior to sample preservation.[12]	Wipe outside of each 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 Calcium arsenate, 6.1, Poison, UN1573	200.7 / 200.8 (EPA OW) [SAM Tier I]
Carbofuran (Furadan)	25 – 100 mL	Amber 40- or 60-mL glass bottles with PTFE-lined screw caps. Preservative should be added to bottle before sample collection.	28 days	Preserve with potassium dihydrogen citrate and sodium thiosulfate (if residual chlorine is present)[9]. After collecting the sample, cap carefully, and agitate for 1 minute. Store at ≤ 6°C and protect from light until analysis. Do not freeze.	Wipe outside of each 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 Carbamate pesticides, liquid, toxic, 6.1, Poison, UN2992	531.2 (EPA OW) [SAM Tier I]
Carbon disulfide	25 – 100 mL	40 mL to 120 mL screw cap vials each equipped with a PTFE-lined silicone septum (Special cleaning required).[13] Fill sample bottles to overflowing.	14 days	If residual chlorine is present, add ~25 mg of ascorbic acid per 40 mL of sample to the sample bottle before filling. Adjust to pH < 2 at time of collection, but after dechlorination, with 2 drops of 1:1 HCl for each 40 mL of sample. Store samples at ≤ 4°C until analysis. The sample storage area must be free of organic solvent vapors and direct or intense light.	Wipe outside of each vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film. Wrap glass vials with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbon disulfide, 3, Flammable liquid, UN1131. See Footnote (10) when bisulfate is used.	524.2 (EPA OW) [SAM Tier I]
Carfentanil	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from treated drinking water samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label	Ch. 4 / 3520C / 3535A / 8321B (EPA SW-846) [SAM Tier III]

Drinking Water Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Chlorfenvinphos	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from treated drinking water samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018	Ch. 4 / 3520C / 3535A / 8270D (EPA SW-846) [SAM Tier I]
Chlorine	0.5 – 2 L	Amber glass bottle	Analyze immediately.	Avoid excessive light and agitation.	Wipe outside of each 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 Chlorine, 2.3, 5.1, Oxidizer, 8, Poison gas, UN1017	4500-Cl G (SM) [SAM TierI]
2-Chloroethanol	40 – 160 mL (one to four VOA vials)	40 mL VOA glass screw-cap vials with PTFE septa	14 days	Cool to 4°C and adjust to pH < 2 with H_2SO_4, HCl, or solid $NaHSO_4$. Store samples in capped vials, with no headspace in an area free of solvent fumes. Add sodium thiosulfate to remove residual chlorine from treated wastewater samples.[9]	Wipe outside of each vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film. Wrap glass vials with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label. See Footnote (10) when bisulfate is used.	Ch. 4 / 5030C / 8260C (EPA SW-846) [SAM Tier II]
3-Chloro-1,2-propanediol[5]	5 mL	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Samples can be stored for at least for 0 –15 days as long as the pH is adjusted to <8	TBD	Wipe outside of each 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	Journal of Chrom. A 866(2000) 65-77 [SAM Tier II]
Chloropicrin[5]	120 – 240 mL	60 mL screw cap glass vials with PTFE-lined septum or lid.	Extract all samples within 14 days of collection and analyze within 14 days following extraction.	Cool to 4°C and store extracts at < negative (-) 10°C until analysis.	Wipe outside of each 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). (Air-tight container containing activated carbon.)	Standard carrier shipping label AND Chloropicrin, 6.1, Poison, UN1580	551.1 (EPA OW) [SAM Tier I]
Chlorpyrifos	40 – 160 mL (One to four VOA vials)	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from treated drinking water samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018	3511 / 8270D (EPA SW-846) [SAM Tier II]

Drinking Water Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Chlorpyrifos oxon	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from treated drinking water samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018	Ch.4 / 3520C / 3535A / 8270D (EPA SW-846) [SAM Tier III]
Crimidine[5]	40 – 160 mL (One to four VOA vials)	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from treated drinking water samples.[9]	Wipe outside of each 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	Ch. 4 / 3511 / 8270D (EPA SW-846) [SAM Tier II]
Cyanide, Amenable to chlorination	1 – 4 L	Glass or polyethylene bottle (1 L size)	14 days	Add NaOH until pH ≥ 12 at time of collection; cool to 4°C.	Wipe outside of each 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 Cyanide solutions n.o.s, 6.1, Poison, UN1935	3135.2I (EPA Regional Lab) [SAM Tier I]
Cyanide, Total	50 – 200 mL	Plastic or glass	14 days	Adjust to pH ≥ 12 with sodium hydroxide; cool to 4°C at time of collection. If feasible, analyze samples immediately upon receipt at laboratory.	Wipe outside of each 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 Cyanide solutions n.o.s, 6.1, Poison, UN1580	335.4 (EPA OW) [SAM Tier I]
Cyanogen chloride[5]	80 – 120 mL Collect in duplicate or triplicate in nominal 40mL vials	40 mL VOA glass screw-cap vials with PTFE septa and threaded polypyrene caps	Samples may be analyzed within 2 weeks. Recommended to analyze as soon as possible after collection.	Cool to 4°C and adjust to pH < 2 with H_2SO_4, HCl, or solid $NaHSO_4$. Store samples in capped vials, with no headspace in an area free of solvent fumes. Add sodium thiosulfate to remove residual chlorine from treated drinking water samples.[9]	Wipe outside of each vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film. Wrap glass vials with bubble wrap. Pack samples as described in Footnote (4). (Air-tight container containing activated carbon)	Standard carrier shipping label AND Cyanogen chloride, 2.3, Poisonous gas, UN1589. See Footnote (10) when bisulfate is used.	Encyclopedia of Anal. Chem. 2006 DOI:10/1002/9780470027 318.a0809 [SAM Tier II]
1,2-Dichloroethane (degradation product of HD)	25 – 100 mL	40 mL to 120 mL screw cap vials each equipped with a PTFE-lined silicone septum (special cleaning required).[13] Fill sample bottles to overflowing.	14 days	If residual chlorine is present add ~25 mg of ascorbic acid per 40 mL of sample to the sample bottle before filling. Adjust to pH < 2 at time of collection, but after dechlorination, with 2 drops of 1:1 HCl for each 40 mL of sample. Seal the sample bottle.	Wipe outside of each vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film. Wrap glass vials with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Ethylene dichloride. 3, Flammable liquid, 6, Poison, UN1184. See Footnote (10) when bisulfate is used.	524.2 (EPA OW) [SAM Tier I]

Drinking Water Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Dichlorvos	1 – 4 L	1 L or 1-quart amber glass bottles fitted with PTFE-lined screw caps (amber bottles are preferred)	Extract samples within 14 days of collection; analyze within 30 days of extraction.	Cool to 4°C. Add sodium sulfite to remove residual chlorine from treated water samples and then adicify to pH < 2 with 6N HCl.[9]	Wipe outside of each 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, liquid, 6.1, Poison, UN3018	525.2 (EPA OW) [SAM Tier I]
Dicrotophos	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from treated water samples.[9]	Wipe outside of each 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, liquid, 6.1, Poison, UN3018	Ch. 4 / 3535A / 8270D (EPA SW-846) [SAM Tier I]
Diesel Range Organics	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from treated drinking water samples.[9]	Wipe outside of each 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	Ch. 4 / 3520C / 3535A / 8015C (EPA SW-846) [SAM Tier I]
Diisopropyl methylphosphonate (DIMP) (degradation product of GB)[5]	40 mL	Amber glass bottles (40 mL or larger) fitted with PTFE-lined screw caps	Analyze samples within 14 days of collection.	Add 400 µL of ammonium acetate concentrated stock and 80 µL of concentrated sodium omadine stock. Samples must not exceed 10 °C during the first 48 hours after collection. Store at or below 6 °C (but not frozen) until analysis.	Wipe outside of each 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	538 (EPA OW) [SAM Tier I]
Dimethylphosphite[5]	Not of concern in this sample type						
Dimethylphosphoramidic acid (degradation product of GA)[5]	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from treated drinking water samples.[9]	Wipe outside of each 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 compound, toxic, liquid, n.o.s, 6.1, Poison, UN3278	Ch. 4 / 3535A / 8321B (EPA SW-846) [SAM Tier III]
Diphacinone	40 mL with a 50 mL final volume	Pre-cleaned amber glass vials with PTFE-lined caps demonstrated to be free of interferences	Analyze the sample within 14 days of collection.	Store in laboratory between 0°C and 6°C. Chlorinated drinking water samples are dechlorinated with ascorbic acid; 10 mg of ascorbic acid is added to each 40 mL vial prior to water collection.	Wipe outside of each 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	D7644-10 (ASTM) [SAM Tier II]

Drinking Water Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Disulfoton	1 – 4 L	1-L or 1-quart amber glass bottles fitted with PTFE-lined screw caps (amber bottles are preferred)	Extract samples within 14 days of collection; analyze within 30 days of extraction.	Cool to 4°C. Add sodium sulfite to remove residual chlorine from treated water samples and then adicify to pH < 2 with 6N HCl.[9]	Wipe outside of each 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, liquid, 6.1, Poison, UN3018	525.2 (EPA OW) [SAM Tier II]
Disulfoton sulfone oxon	1 – 4 L	1-L or 1-quart amber glass bottles fitted with PTFE-lined screw caps (amber bottles are preferred)	Extract samples within 14 days of collection; analyze within 30 days of extraction.	Cool to 4°C. Add sodium sulfite to remove residual chlorine from treated water samples and then adicify to pH < 2 with 6N HCl.[9]	Wipe outside of each 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, liquid, 6.1, Poison, UN3018	525.2 (EPA OW) [SAM Tier III]
Disulfoton sulfoxide	1 – 4 L	1-L or 1-quart amber glass bottles fitted with PTFE-lined screw caps (amber bottles are preferred)	Extract samples within 14 days of collection; analyze within 30 days of extraction.	Cool to 4°C. Add sodium sulfite to remove residual chlorine from treated water samples and then adicify to pH < 2 with 6N HCl.[9]	Wipe outside of each 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, liquid, 6.1, Poison, UN3018	525.2 (EPA OW) [SAM Tier II]
Disulfoton sulfoxide oxon	1 – 4 L	1-L or 1-quart amber glass bottles fitted with PTFE-lined screw caps (amber bottles are preferred)	Extract samples within 14 days of collection; analyze within 30 days of extraction.	Cool to 4°C. Add sodium sulfite to remove residual chlorine from treated water samples and then adicify to pH < 2 with 6N HCl.[9]	Wipe outside of each 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, liquid, 6.1, Poison, UN3018	525.2 (EPA OW) [SAM Tier III]
1,4-Dithiane (degradation product of HD)[5]	40 – 160 mL (One to four VOA vials)	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from treated drinking water samples.[9]	Wipe outside of each 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	3511 / 8270D (EPA SW-846) [SAM Tier II]
EA2192 [S-2-(diisopropylamino)ethyl methylphosphonothioic acid] (hydrolysis product of VX)[5]	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Minimize transport and storage time; if feasible, analyze or extract immediately upon receipt at the laboratory.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from treated drinking water samples.[9]	TBD[7] Air-tight container containing activated carbon	TBD[7]	Ch. 4 / 3535A / 8321B (EPA SW-846) / Footnote (8) [SAM Tier III]

Drinking Water Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Ethyl methyl phosphonic acid (EMPA) (degradation product of VX)[5]	25 mL	Pre-cleaned amber class bottles with PTFE-lined caps demonstrated to be free of interferences.	Minimize transport and storage time; if feasible, analyze or extract immediately upon receipt at the laboratory.	Store between 0°C and 6°C.	Wipe outside of each 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 compound, toxic, liquid, n.o.s, 6.1, Poison, UN3278	D7597-09 (ASTM) [SAM Tier III]
Ethyldichloroarsine (ED)[5]	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	TBD. Minimize transport and storage time; if feasible, analyze or extract immediately upon receipt at the laboratory.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from treated drinking water samples.[9]	Wipe outside of each 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 Ethyldichloroarsine, 6.1, Poison, UN1892	Ch. 4 / 3535A / 8270D (EPA SW-846) [SAM Tier III]
N-Ethyldiethanolamine (EDEA) (degradation product of HN-1)[5]	25 mL	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	TBD	Store between 0°C and 6°C.	Wipe outside of each 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). (Air-tight container containing activated carbon)	Standard carrier shipping label	D7599-09 (ASTM) [SAM Tier III]
Ethylene oxide	40 – 160 mL (one to four VOA vials)	40 mL VOA glass screw-cap vials with PTFE septa	14 days	Cool to 4°C and adjust to pH < 2 with H_2SO_4, HCl, or solid $NaHSO_4$. Store samples in capped vials, with no headspace in an area free of solvent fumes. Add sodium thiosulfate to remove residual chlorine from treated drinking water samples.[9]	Wipe outside of each vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film. Wrap glass vials 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). See Footnote (10) when bisulfate is used.	Ch. 4 / 5030C / 8260C (EPA SW-846) [SAM Tier II]
Fenamiphos	1 – 4 L	Amber glass bottles fitted with PTFE-lined screw caps	Extract immediately; extracts may be stored for up to 30 days after sample extraction.	Cool to 4°C. Add sodium sulfite to remove residual chlorine from treated water samples and then adicify to pH < 2 with 6N HCl.[9]	Wipe outside of each 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, liquid, 6.1, Poison, UN3018	525.2 (EPA OW) [SAM Tier I]

Drinking Water Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Fentanyl	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from treated drinking water samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label	Ch. 4 / 3520C / 3535A / 8321B (EPA SW-846) [SAM Tier II]
Fluoride	40 mL (one VOA vial)	40 mL VOA vial	28 days	None	Wipe outside of each 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	300.1, Rev 1.0 (EPA OW) [SAM Tier I]
Fluoroacetamide	TBD	TBD	TBD	TBD	TBD	Standard carrier shipping label	Adapted from Journal of Chromatography B, 876(1):103-108 [SAM Tier II]
Fluoroacetic acid and fluoroacetate salts (analyze as fluoroacetate ion)[5]	25 mL	Pre-cleaned amber glass bottles with PTFE-lined caps demonstrated to be free of interferences	TBD	TBD	Wipe outside of each 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	Journal of Chromatography B. 2010, 878:1045-1050 [SAM Tier III]
2-Fluoroethanol	40 – 160 mL (One to four VOA vials)	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	14 days	Cool to 4°C and adjust to pH < 2 with H_2SO_4, HCl, or solid $NaHSO_4$. Store samples in capped vials, with no headspace in an area free of solvent fumes. Add sodium thiosulfate to remove residual chlorine from treated water samples.[9]	Wipe outside of each 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	Ch. 4 / 5030C / 8260C (EPA SW-846) [SAM Tier III]
Formaldehyde	30 - 120 (One to four 30 mL amber bottles)	30 mL amber glass, screw cap bottles and caps equipped with PTFE-faced silicon septa. Screw caps should be polypropylene.	Samples must be extracted within 7 days of sampling. Extracts must be analyzed within 14 days of extraction.	Samples must be iced or refrigerated at 4 ± 2 C and maintained at these conditions away from light until extraction.	Wipe outside of each 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 Formaldehyde (concentration dependent, refer to 40 CFR 172.101 for more information).	556.1 (EPA OW) [SAM Tier I]

Drinking Water Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Gasoline Range Organics	40 – 160 mL (One to four VOA vials)	40 mL VOA glass screw-cap vials with PTFE septa	14 days	Cool to 4°C and adjust to pH < 2 with H_2SO_4, HCl, or solid $NaHSO_4$. Store samples in capped vials, with no headspace in an area free of solvent fumes. Add sodium thiosulfate to remove residual chlorine from treated drinking water samples.[9]	Wipe outside of each vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film. Wrap glass vials with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier AND Gasoline identification set, 2.3, Poison gas, NA9035. See Footnote (10) when bisulfate is used.	Ch. 4 / 5030C / 8015C (EPA SW-846) [SAM Tier I]
Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from treated drinking water samples.[9]	Wipe outside of each 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 RDX, 1.1, Explosive, UN0483	Ch. 4 / 3535A / 8330B (EPA SW-846) [SAM Tier I]
Hexamethylenetriperoxide-diamine (HMTD)[5]	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from treated drinking water samples.[9]	Wipe outside of each 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).	Forbidden	Ch. 4 / 3535A / 8330B (EPA SW-846) / Analyst (2001) 126:1689-1693 [SAM Tier II]
Hydrogen bromide	Not of concern in this sample type						
Hydrogen chloride	Not of concern in this sample type						
Hydrogen cyanide[5]	Not of concern in this sample type						
Hydrogen fluoride	Not of concern in this sample type						
Hydrogen sulfide	Not of concern in this sample type						
Isopropyl methylphosphonic acid (IMPA) (degradation product of GB)[5]	1 – 4 L	Pre-cleaned amber glass bottles with PTFE-lined caps demonstrated to be free of interferences	Minimize transport and storage time; if feasible, analyze or extract immediately upon receipt at the laboratory.	Store between 0°C and 6°C.	Wipe outside of each 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 compound, toxic, liquid, n.o.s, 6.1, Poison, UN3278	D7597-09 [SAM Tier III]
Kerosene[5]	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	14 days	Cool to 4°C and adjust to pH < 2 with H_2SO_4, HCl, or solid $NaHSO_4$. Store samples in capped vials, with no headspace in an area free of solvent fumes. Add sodium thiosulfate to remove residual chlorine from treated drinking water samples.[9]	Wipe outside of each vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film. Wrap glass vials with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Kerosene, 3, Flammable, UN1223. See Footnote (10) when bisulfate is used.	Ch. 4 / 5030C / 8015C (EPA SW-846) [SAM Tier I]

Drinking Water Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Lead arsenate (analyze as total arsenic)	120 – 480 mL	Plastic or glass (special cleaning needed)[11]	Preserve with acid within 2 weeks of collection; can be held 6 months with acidification. If not acid preserved, analyze immediately.	Acidify to pH < 2 with nitric acid and store at 4°C. If arsenic species are to be determined, remove unpreserved aliquot prior to sample preservation.[12]	Wipe outside of each 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 Lead arsenate, 6.1, Poison, UN1617	200.7 / 200.8 (EPA OW) [SAM Tier I]
Lewisite oxide (degradation product of Lewisite)[5] (analyze as total arsenic)	120 – 480 mL	Plastic or glass (special cleaning needed)[11]	Preserve with acid within 2 weeks of collection. Samples can be held 6 months with acidification; if not acid preserved, analyze immediately.	Acidify to pH < 2 with nitric acid and store at 4°C. If arsenic species are to be determined, remove unpreserved aliquot prior to sample preservation.[12]	Wipe outside of each 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 Arsenic compounds, liquid, n.o.s, 6.1, Poison, UN1556	200.7 / 200.8 (EPA OW) / Footnote (8) [SAM Tier I]
Mercuric chloride (analyze as total mercury)	100 – 400 mL	BOD bottle or ground glass stoppered flask	28 days	Preserve samples to pH < 2 with nitric acid upon collection and hold for 16 hours before analyzing. If dissolved mercury is to be determined, filter the sample prior to preservation.[12]	Wipe outside of each 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 Mercuric chloride, 6.1, Poison, UN1624	245.1 (EPA OW) / 40 CFR 136.3 [SAM Tier I]
Mercury, Total	100 – 400 mL	BOD bottle or ground glass stoppered flask	28 days	Preserve samples to pH < 2 with nitric acid upon collection and hold for 16 hours before analyzing. If dissolved mercury is to be determined, filter the sample prior to preservation.[12]	Wipe outside of each 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 Mercury, 8, Corrosive, UN2809	245.1 (EPA OW) / 40 CFR 136.3 [SAM Tier I]
Methamidophos	40 mL	Amber glass bottles (40 mL or larger) fitted with PTFE-lined screw caps	Analyze samples within 14 days of collection.	Add 400 µL of ammonium acetate concentrated stock and 80 µL of concentrated sodium omadine stock. Samples must not exceed 10 °C during the first 48 hours after collection. Store at or below 6 °C (but not frozen) until analysis.	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles 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) [SAM Tier I]

Drinking Water Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Methomyl	25 – 100 mL	Amber 40- or 60-mL glass bottles with PTFE-lined screw caps. Preservative should be added to bottle before sample collection.	28 days	Preserve with potassium dihydrogen citrate and sodium thiosulfate (if residual chlorine is present)[9]. After collecting the sample, cap carefully, and agitate for 1 minute. Store at ≤ 6°C and protect from light until analysis. Do not freeze.	Wipe outside of each 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 Carbamate pesticides, liquid, toxic, 6.1, Poison, UN2992	531.2 (EPA OW) [SAM Tier I]
Methoxyethylmercuric acetate (analyze as total mercury)[5]	100 – 400 mL	PTFE or glass	28 days	Preserve samples to pH < 2 with nitric acid upon collection. If mercury species are to be determined, remove a sample aliquot prior to preservation.[12]	Wipe outside of each 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 Mercury compounds, liquid, n.o.s, 6.1, Poison, UN2024	245.1 (EPA OW) / 40 CFR 136.3 [SAM Tier I]
Methyl acrylonitrile	25 – 100 mL	Amber glass or PTFE container with PTFE-lined septum or lid. 40-mL to 120-mL screw cap vials each equipped with a PTFE-lined silicone septum (special cleaning required).[13] Fill sample bottles to overflowing.	14 days	If residual chlorine is present add ~25 mg of ascorbic acid per 40 mL of sample to the sample bottle before filling. Adjust to pH < 2 at time of collection, but after dechlorination, with 2 drops of 1:1 HCl for each 40 mL of sample. Seal the sample bottle.	Wipe outside of each vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film. Wrap glass vials with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Ethylene dichloride. 3, Flammable liquid, 6, Poison, UN1184. See Footnote (10) when bisulfate is used.	524.2 (EPA OW) [SAM Tier II]
Methyl fluoroacetate (analyze as fluoroacetate ion)[5]	25mL	Pre-cleaned amber glass bottles with PTFE-lined caps demonstrated to be free of interferences	TBD	TBD	Wipe outside of each 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	Journal of Chromatography B, 2010. 878:1045-1050 [SAM Tier III]
Methyl hydrazine[5]	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from treated drinking water samples.[9]	Wipe outside of each 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 Methyl hydrazine, 6.1, Poison, UN1244	J. Chrom. 1993 (617), 157-162 [SAM Tier II]
Methyl isocyanate	Not of concern in this sample type						
Methyl paraoxon	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from treated drinking water samples.[9]	Wipe outside of each 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, liquid, 6.1, Poison, UN3018	Ch. 4 / 3535A / 8270D (EPA SW-846) [SAM Tier III]

Drinking Water Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Methyl parathion	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from treated drinking water samples.[9]	Wipe outside of each 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, liquid, 6.1, Poison, UN3018	Ch. 4 / 3535A / 8270D (EPA SW-846) [SAM Tier I]
Methylamine	Not of concern in this sample type						
N-Methyldiethanolamine (MDEA) (degradation product of HN-2)[5]	25 mL	Pre-cleaned amber glass bottles with PTFE-lined caps demonstrated to be free on interferences	TBD. Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store between 0°C and 6°C.	Wipe outside of each 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	D7597-09 (ASTM) [SAM Tier III]
Methylphosphonic acid (MPA) (degradation product of VX, GB, & GD)[5]	25 mL	Pre-cleaned amber glass bottles with PTFE-lined caps demonstrated to be free on interferences	TBD. Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store between 0°C and 6°C.	Wipe outside of each 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 compound, toxic, liquid, n.o.s, 6.1, Poison, UN3278	D7597-09 (ASTM) [SAM Tier III]
Mevinphos	1 – 4 L	Amber glass bottles fitted with PTFE-lined screw caps	Extract samples within 14 days of collection; analyze within 30 days of extraction.	Cool to 4°C. Add sodium sulfite to remove residual chlorine from treated water samples and then adicify to pH < 2 with 6N HCl.[9]	Wipe outside of each 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, liquid, 6.1, Poison, UN3018	525.2 (EPA OW) [SAM Tier I]
Monocrotophos	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from treated drinking water samples.[9]	Wipe outside of each 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, liquid, 6.1, Poison, UN3018	Ch. 4 / 3535A / 8270D (EPA SW-846) [SAM Tier I]
Nicotine compounds (analyze as nicotine)	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from treated drinking water samples.[9]	Wipe outside of each 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 Nicotine compounds, liquid, n.o.s, 6.1, Poison, UN3144	Ch. 4 / 3535A / 8270D (EPA SW-846) [SAM Tier II]

Drinking Water Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C and store in the dark. Add sodium thiosulfate to remove residual chlorine from treated drinking water samples.[9]	Wipe outside of each 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	Ch. 4 / 3535A / 8330B (EPA SW-846) [SAM Tier I]
Osmium tetraoxide (analyze as total osmium)[5]	1 – 4 L	Glass (special cleaning needed)[11]	Analyze or digest samples as soon as possible upon receipt. Digested samples can be held up to 6 months prior to analysis.	1% Ammonium hydroxide.[12]	Wipe outside of each 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 Osmium tetroxide, 6.1, Poison, UN2471	200.7 / 200.8 (EPA OW) [SAM Tier II]
Oxamyl	25 – 100 mL	Amber 40- or 60-mL glass bottles with PTFE-lined screw caps. Preservative should be added to bottle before sample collection.	28 days	Preserve with potassium dihydrogen citrate and sodium thiosulfate (if residual chlorine is present)[9]. After collecting the sample, cap carefully, and agitate for 1 minute. Store at ≤ 6°C and protect from light until analysis. Do not freeze.	Wipe outside of each 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 Carbamate pesticides, liquid, toxic, 6.1, Poison, UN2992	531.2 (EPA OW) [SAM Tier I]
Paraoxon	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018	Ch. 4 / 3520C / 3535A / 8270D (EPA SW-846) [SAM Tier III]
Paraquat	1 – 4 L	High density PVC or silanized amber glass bottle (1-L) fitted with screw cap.	Extract samples within 7 days of collection; analyze within 21 days of extraction.	Refrigerate at 4°C from time of collection until extraction. Add 100 mg/L sodium thiosulfate to samples containing residual chlorine. Keep protected from light.	Wipe outside of each 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 Bipyridilium pesticides, liquid, 6.1, Toxic, UN3016	549.2 (EPA OW) [SAM Tier I]
Parathion	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018	Ch. 4 / 3520C / 3535A / 8270D (EPA SW-846) [SAM Tier I]

Drinking Water Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Pentaerythritol tetranitrate (PETN)	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C and store in the dark. Add sodium thiosulfate to remove residual chlorine from treated drinking water samples.[9]	Wipe outside of each 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).	Forbidden	Ch. 4 / 3535A / 8330B (EPA SW-846) [SAM Tier I]
Phencyclidine	40 – 160 mL (One to four VOA vials)	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from treated drinking water samples.[9]	Wipe outside of each 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	3511 / 8270D (EPA SW-846) [SAM Tier II]
Phorate	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from treated drinking water samples.[9]	Wipe outside of each 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, liquid, 6.1, Poison, UN3018	Ch. 4 / 3535A / 8270D (EPA SW-846) [SAM Tier I]
Phorate sulfone	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from treated drinking water samples.[9]	Wipe outside of each 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, liquid, 6.1, Poison, UN3018	Ch. 4 / 3535A / 8270D (EPA SW-846) [SAM Tier III]
Phorate sulfone oxon	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from treated drinking water samples.[9]	Wipe outside of each 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, liquid, 6.1, Poison, UN3018	Ch. 4 / 3535A / 8270D (EPA SW-846) [SAM Tier III]
Phorate sulfoxide	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from treated drinking water samples.[9]	Wipe outside of each 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, liquid, 6.1, Poison, UN3018	Ch. 4 / 3535A / 8270D (EPA SW-846) [SAM Tier III]

Drinking Water Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Phorate sulfoxide oxon	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from treated drinking water samples.[9]	Wipe outside of each 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, liquid, 6.1, Poison, UN3018	Ch. 4 / 3535A / 8270D (EPA SW-846) [SAM Tier III]
Phosgene	Not of concern in this sample type						
Phosphamidon	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from wastewater samples.[9]	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Organophosphorus pesticides, liquid, 6.1, Poison, UN3018	Ch. 4 / 3520C / 3535A / 8270D (EPA SW-846) [SAM Tier I]
Phosphine	Not of concern in this sample type						
Phosphorus trichloride	Not of concern in this sample type						
Pinacolyl methyl phosphonic acid (PMPA) (degradation product of GD)[5]	25 mL	Pre-cleaned amber glass bottles with PTFE-lined caps demonstrated to be free of interferences	TBD. Minimize transport and storage time; if feasible, analyze or extract immediately upon receipt at the laboratory.	Store between 0°C and 6°C.	Wipe outside of each 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 compound, toxic, liquid, n.o.s, 6.1, Poison, UN3278	D7597-09 (ASTM) [SAM Tier III]
Propylene oxide[5]	40 – 160 mL (One to four VOA vials)	40 mL VOA glass screw-cap vials with PTFE septa	14 days	Cool to 4°C and adjust to pH < 2 with H_2SO_4, HCl, or solid $NaHSO_4$. Store samples in capped vials, with no headspace in an area free of solvent fumes. Add sodium thiosulfate to remove residual chlorine from treated drinking water samples.[9]	Wipe outside of each vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film. Wrap glass vials with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Propylene oxide, 3, Flammable liquid, UN1280. See Footnote (10) when bisulfate is used.	Ch. 4 / 5030C / 8260C (EPA SW-846) [SAM Tier II]
Sodium arsenite (analyze as total arsenic)[5]	120 – 480 mL	Plastic or glass (special cleaning needed)[11]	Preserve with acid within 2 weeks of collection. Samples can be held 6 months with acidification; if not acid preserved, analyze immediately.	Acidify to pH < 2 with nitric acid and store at 4°C. If arsenic species are to be determined, remove unpreserved aliquot prior to sample preservation.[12]	Wipe outside of each 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 Sodium arsenite, aqueous solutions, 6.1, Poison, UN1686	200.7 / 200.8 (EPA OW) [SAM Tier I]

Drinking Water Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Sodium azide (analyze as azide ion)	40 mL (one VOA vial)	40 mL VOA vial	28 days	None	Wipe outside of each 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 Sodium azide, 6.1, Poison, UN1687	Adapted from J. of Forensic Sciences, 43(1): 200-202 / 300.1, Rev 1.0 (EPA OW) [SAM Tier II]
Strychnine	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 7 days and analyze extracts within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from treated drinking water samples.[9]	Wipe outside of each 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	Ch. 4 / 3535A / 8270D (EPA SW-846) [SAM Tier I]
Tetraethyl pyrophosphate[5] (TEPP)	40 – 160 mL (One to four VOA vials)	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from treated drinking water samples.[9]	Wipe outside of each 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, liquid, 6.1, Poison, UN3018	3511 / 8270D (EPA SW-846) [SAM Tier II]
Tetramethylene-disulfotetramine[5] (TETS)	50 – 200 mL	50 mL polypropylene vessel fitted with a flat-top polyethylene screw-cap	28 days	Cool to 4°C. Add preservatives descrived in Table 9-2 of the method.	Wipe outside of each 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 Pesticides, liquid, toxic, n.o.s, 6.1, Poison, UN2902	EPA 600/R-11/091 (EPA/CDC) [SAM Tier II]
Thallium sulfate (analyze as total thallium)	120 – 480 mL	Plastic or glass (special cleaning needed)[11]	Samples should be preserved with acid within 2 weeks of collection, and can be held 6 months with acidification. If not acid preserved, analyze immediately.	Acidify to pH < 2 with nitric acid and store at 4°C. If arsenic species are to be determined, remove unpreserved aliquot prior to sample preservation.[12]	Wipe outside of each 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 Thallium compounds n.o.s, 6.1, Poison, UN1707	200.7 / 200.8 (EPA OW) [SAM Tier I]

Drinking Water Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Thiodiglycol (TDG) (degradation product of HD)[5]	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Minimize transport and storage time; if feasible, analyze or extract immediately upon receipt at the laboratory.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from treated drinking water samples.[9]	Wipe outside of each 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). (Air-tight container containing activated carbon)	Standard carrier shipping label AND Aviation regulated liquid, n.o.s, UN3334	Ch. 4 / 3535A / 8321B (EPA SW-846) / Footnote (8) [SAM Tier III]
Thiofanox	40 mL	Amber glass bottles (40 mL or larger) fitted with PTFE-lined screw caps	Analyze samples within 14 days of collection.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine. Add 400 µL of ammonium acetate concentrated stock and 80 µL of concentrated sodium omadine stock. Samples ust not exceed 10 °C during the first 48 hours after collection. Store at or below 6 °C (but above freezing) until analysis.	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles 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) [SAM Tier I]
1,4-Thioxane (degradation product of HD)[5]	40 – 160 mL (One to four VOA vials)	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from treated drinking water samples.[9]	Wipe outside of each 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 Flammable Liquids, n.o.s, 3, Flammable, UN1993	3511 / 8270D (EPA SW-846) [SAM Tier II]
Titanium tetrachloride (analyze as total titanium)	Not of concern in this sample type						
Triethanolamine (TEA) (degradation product of HN-3)[5]	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C. Add sodium thiosulfate to remove residual chlorine from treated drinking water samples.[9]	Wipe outside of each 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 Ethanolamine solutions, 8, Corrosive, UN2491	3520C / 3535A / 8321B (EPA SW-846) [SAM Tier III]
Trimethyl phosphite[5]	Not of concern in this sample type						
1,3,5-Trinitrobenzene (1,3,5-TNB)	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C and store in the dark. Add sodium thiosulfate to remove residual chlorine from treated drinking water samples.[9]	Wipe outside of each 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 Trinitrobenzene and trinitrotoluene mixtures, 1.1, Explosive, UN0388	Ch. 4 / 3535A / 8330B (EPA SW-846) [SAM Tier I]

Drinking Water Samples							
Analyte	**Sample Volume[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
2,4,6-Trinitrotoluene (2,4,6-TNT)	1 – 4 L	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C and store in the dark. Add sodium thiosulfate to remove residual chlorine from treated drinking water samples.[9]	Wipe outside of each 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 Trinitrobenzene and trinitrotoluene mixtures, 1.1, Explosive, UN0388	Ch. 4 / 3535A / 8330B (EPA SW-846) [SAM Tier I]
Vanadium pentoxide (analyze as total vanadium)	120 – 480 mL	Plastic or glass (special cleaning needed)[11]	Samples should be preserved with acid within 2 weeks of collection, and can be held 6 months with acidification. If not acid preserved, analyze immediately.	Acidify to pH < 2 with nitric acid and store at 4°C. If arsenic species are to be determined, remove unpreserved aliquot prior to sample preservation.[12]	Wipe outside of each 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 Vanadium pentoxide, 6.1, Poison, UN2862	200.7 / 200.8 (EPA OW) [SAM Tier I]
White phosphorus	0.5 – 2 L	Wide-mouth glass or PTFE container with PTFE-lined septum or lid. Fill to overflowing to eliminate headspace.	Extracts with isooctane should be analyzed within 30 days.	Cool to 4°C and store in the dark.	Wipe outside of each 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 Phosphorus, white (dry or wetted), 4.2, Spontaneously combustible, 6.1, Poison, UN1381	7580 (EPA SW-846) [SAM Tier I]

Solid Samples							
Analyte	**Sample Size[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Acephate	TBD	250 mL PTFE centrifuge tube	Analyze immediately or store at negative (-) 18°C.	Cool to ≤ 6°C.	TBD	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783	Adapted from Journal of Chromatography A, 1154(1): 3-25 [SAM Tier II]
Acrylamide	20 – 80 g	250 mL wide-mouth glass container with PTFE-lined septa or lid	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C.	Wipe outside of each container clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Acrylamide, solid, 6.1, Poison, UN2074	Water Extraction 8316 (EPA SW-846) [SAM Tier III]
Acrylonitrile	5 – 20 g When collected without preservative, fill the container, leaving no headspace.	40 mL VOA vial (with septum) and magnetic stirring bar	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Preserve to pH ≤ 2 with NaHSO4 (low analyte concentrations) or methanol (high analyte concentrations) and cool to 4°C. Freeze unpreserved samples at negative (-) 7°C. (Frozen vials should be placed on their side.)	Wipe outside of each container clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Acrylonitrile, stabilized, 3, Flammable liquid, 6.1, Poison, UN1093	Ch. 4 / 5035A / 8260C (EPA SW-846) [SAM Tier II]
Aldicarb (Temik)	20 – 80 g	Clear, wide-mouth glass jar with PTFE-lined lid	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store at 4 (±2)°C and out of direct sunlight.	Wipe outside of each 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 Carbamate pesticides, solid, toxic, 6.1, UN2757	Ch. 4 / 8318A (EPA SW-846) [SAM Tier II]
Aldicarb sulfone	20 – 80 g	250 mL wide-mouth glass container with PTFE-lined septa or lid	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store at 4 (±2)°C and out of direct sunlight. Acidify to pH 4 − 5 with 0.1N chloroacetic acid immediately after collection.	Wipe outside of each 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 Carbamate pesticides, solid, toxic, 6.1, UN2757	Ch. 4 / 8318A (EPA SW-846) [SAM Tier II]
Aldicarb sulfoxide	20 – 80 g	250 mL wide-mouth glass container with PTFE-lined septa or lid	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store at 4 (±2)°C and out of direct sunlight. Acidify to pH 4 − 5 with 0.1N chloroacetic acid immediately after collection.	Wipe outside of each 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 Carbamate pesticides, solid, toxic, 6.1, UN2757	Ch. 4 / 8318A (EPA SW-846) [SAM Tier III]
Allyl alcohol	5 – 20 g When collected without preservative, fill the container, leaving no headspace.	40 mL VOA vial (with septum) and magnetic stirring bar	14 days	Preserve to pH ≤ 2 with $NaHSO_4$ (low analyte concentrations) or methanol (high analyte concentrations) and cool to 4°C. Freeze unpreserved samples at negative (-) 7°C. (Frozen vials should be placed on their side.)	Wipe outside of each vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film. Wrap glass vials with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Allyl alcohol, 3, Flammable liquid, 6.1, Poison, UN1098. See Footnote (2) when adding liquid preservatives such as methanol or bisulfate.	Ch. 4 / 5035A / 8260C (EPA SW-846) [SAM Tier II]

Solid Samples							
Analyte	**Sample Size[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
4-Aminopyridine	10 – 40 g	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store samples and extracts at ≤ 4°C in the dark. After air drying, soil and solid samples can be stored at room temperature.	Wipe outside of each bottle clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Aminopyridines, 6.1, Poison, UN2671	Ch. 4 / 8330B (EPA SW-846) [SAM Tier III]
Ammonia	Not of concern in this sample type						
Ammonium metavanadate (analyze as total vanadium)	200 g	PTFE, plastic or glass. If using 6020A, only PTFE or fluorocarbon containers are recommended. (special cleaning needed).[11]	Digest samples as soon as possible after arrival; analyze within 180 days of digestion.	None	Wipe outside of each 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 Ammonium metavanadate, 6.1, Poison, UN2859	3050B / 6010C / 6020A (EPA SW-846) [SAM Tier I]
Arsenic, Total	200 g	PTFE, plastic or glass. If using 6020A, only PTFE or fluorocarbon containers are recommended. (special cleaning needed).[11]	Digest samples as soon as possible after arrival; analyze within 180 days of digestion.	None	Wipe outside of each 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 Arsenic, 6.1, Poison, UN1558	Ch. 3 / 3050B / 6010C / 6020A (EPA SW-846) [SAM Tier I]
Arsenic trioxide (analyze as total arsenic)	200 g	PTFE, plastic or glass. If using 6020A, only PTFE or fluorocarbon containers are recommended. (special cleaning needed).[11]	Digest samples as soon as possible after arrival; analyze within 180 days of digestion.	None	Wipe outside of each 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 Arsenic trioxide, 6.1, Poison, UN1561	3050B / 6010C / 6020A (EPA SW-846) [SAM Tier I]
Arsine[5] (analyze as total arsenic in non-air samples)	1 – 8 g (wet weight) or 1 – 4 g (dry weight)	Plastic or glass (special cleaning needed)[11]	Minimize transport and storage time; if feasible, analyze or extract immediately upon receipt at the laboratory.	None	Wipe outside of each 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 Arsine, 2.3 (2.1), Poisonous gas, UN2188	Ch. 3 / 3050B / 7010 (EPA SW-846) [SAM Tier I]
Asbestos	200 mL for soft surfaces; wipe for hard surfaces	Wipe (hard surfaces); 25 or 37 mm air sampling cassette transferred to aqueous suspension of 200 mL (soft surfaces)	None	None	Wipe outside of each 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	D5755-03 (soft surfaces-microvac) (ASTM) [SAM Tier III]
Boron trifluoride	Not of concern in this sample type						

Solid Samples							
Analyte	**Sample Size[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Brodifacoum	50 – 200 g	250 mL wide-mouth glass container with PTFE-lined septa or lid	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C.	Wipe outside of each 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, solid, toxic, 6.1, Poison, UN3026	Ch. 4 / 3541 / 3545A / 8321B (EPA SW-846) [SAM Tier III]
Bromadiolone[5]	50 – 200 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C.	Wipe outside of each 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, solid, toxic, 6.1, Poison, UN3026	Ch. 4 / 3541 / 3545A / 8321B (EPA SW-846) [SAM Tier III]
Calcium arsenate (analyze as total arsenic)	200 g	PTFE, plastic or glass. If using 6020A, only PTFE or fluorocarbon containers are recommended. (special cleaning needed).[11]	Digest samples as soon as possible after arrival; analyze within 180 days of digestion.	None	Wipe outside of each 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 Calcium arsenate, 6.1, Poison, UN1573	Ch. 3 / 3050B / 6010C / 6020A (EPA SW-846) [SAM Tier I]
Carbofuran (Furadan)	20 – 80 g	Clear, wide mouth glass jar with PTFE-lined lid	Extract within 7 days of collection; analyze within 40 days of extraction.	Store at 4 (±2)°C and out of direct sunlight.	Wipe outside of each 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 Carbamate pesticides, solid, toxic, 6.1, UN2757	8318A (EPA SW-846) [SAM Tier II]
Carbon disulfide	5 – 20 g When collected without preservative, fill the container, leaving no headspace.	40 mL VOA vial (with septum) and magnetic stirring bar	14 days	Preserve to pH ≤ 2 with $NaHSO_4$ (low analyte concentrations) or methanol (high analyte concentrations) and cool to 4°C. Freeze unpreserved samples at negative (-) 7°C. (Frozen vials should be placed on their side.)	Wipe outside of each vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film. Wrap glass vials with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Carbon disulfide, 3, Flammable liquid, UN1131. See Footnote (11) when methanol or bisulfate is used.	Ch. 4 / 5035A / 8260C (EPA SW-846) [SAM Tier I]
Carfentanil	50 – 200 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C.	Wipe outside of each 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	Ch. 4 / 3541 / 3545A / 8321B (EPA SW-846) [SAM Tier III]

Solid Samples							
Analyte	**Sample Size[(1)]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[(2)]**	**Source/SAM Method[(3)]**
Chlorfenvinphos	1 – 4 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3541 / 3545A / 8270D (EPA SW-846) [SAM Tier I]
Chlorine	Not of concern in this sample type						
2-Chloroethanol	5 – 20 g When collected without preservative, fill the container, leaving no headspace.	40 mL VOA vial (with septum) and magnetic stirring bar	14 days	Preserve to pH ≤ 2 with $NaHSO_4$ (low analyte concentrations) or methanol (high analyte concentrations) and cool to 4°C. Freeze unpreserved samples at negative (-) 7°C. (Frozen vials should be placed on their side.)	Wipe outside of each vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film. Wrap glass vials with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label. See Footnote (2) when adding liquid preservatives such as methanol or bisulfate	Ch. 4 / 5035A / 8260C (EPA SW-846) [SAM Tier II]
3-Chloro-1,2-propanediol[(5)]	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C.	Wipe outside of each 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	European Journal Lipid Sci. Technology 2011, 113 345-355 [SAM Tier II]
Chloropicrin[(5)]	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C.	Wipe outside of each 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). (Air-tight container containing activated carbon.)	Standard carrier shipping label AND Chloropicrin, 6.1, Poison, UN1580	Ch. 4 / 3570A / 8270D (EPA SW-846) [SAM Tier II]
Chlorpyrifos	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C.	Wipe outside of each 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	Ch. 4 / 3570A / 8270D (EPA SW-846) [SAM Tier II]

Solid Samples							
Analyte	**Sample Size[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Chlorpyrifos oxon	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C.	Wipe outside of each 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	Ch. 4 / 3541 / 3545A / 8270D (EPA SW-846) [SAM Tier III]
Crimidine[5]	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C.	Wipe outside of each 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	Ch. 4 / 3570 / 8270D (EPA SW-846) [SAM Tier II]
Cyanide, Amenable to chlorination	30 - 120 g	Glass or polyethylene bottle (1 L size)	14 days	Add NaOH until pH ≥ 12 at time of collection; cool to 4°C.	Wipe outside of each 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 Cyanide inorganic solid n.o.s, 6.1, Poison, UN1588	3135.2I (EPA Regional Lab) [SAM Tier I]
Cyanide, Total	1 – 5 g	Glass or polyethylene bottles	12 days after sample receipt	Protect from light and ice or refrigerate at 4 (±2)°C from collection until digestion.	Wipe outside of each 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). (Air-tight container containing activated carbon.)	Standard carrier shipping label AND Cyanides, inorganic, solid, n.o.s, 6.1, Poison, UN1588	ISM 01.3 CN (EPA CLP) [SAM Tier I]
Cyanogen chloride[5]	5 – 20 g When collected without preservative, fill the container, leaving no headspace.	40 mL VOA vial (with septum) and magnetic stirring bar	Minimize transport and storage time; if feasible, analyze or extract immediately upon receipt at the laboratory.	Preserve to pH ≤ 2 with $NaHSO_4$ (low analyte concentrations) or methanol (high analyte concentrations) and cool to 4°C. Freeze unpreserved samples at negative (-) 7°C. (Frozen vials should be placed on their side.)	Wipe outside of each vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film. Wrap glass vials with bubble wrap. Pack samples as described in Footnote (4). (Air-tight container containing activated carbon.)	Standard carrier shipping label AND Cyanogen chloride, 2.3, Poisonous gas, UN1589. See Footnote (11) when methanol or bisulfate is used.	Encyclopedia of Anal. Chem. 2006 DOI: 10.1002/9780470027318.a0809 [SAM Tier II]

Solid Samples							
Analyte	**Sample Size[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
1,2-Dichloroethane (degradation product of HD)	5 – 20 g When collected without preservative, fill the container, leaving no headspace.	40 mL VOA vial (with septum) and magnetic stirring bar	14 days	Preserve to pH ≤ 2 with $NaHSO_4$ (low analyte concentrations) or methanol (high analyte concentrations) and cool to 4°C. Freeze unpreserved samples at negative (-) 7°C. (Frozen vials should be placed on their side.)	Wipe outside of each vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film. Wrap glass vials with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Ethylene dichloride, 6, Poison, UN1184. See Footnote (2) when adding liquid preservatives such as methanol or bisulfate.	Ch. 4 / 5035A / 8260C (EPA SW-846) [SAM Tier I]
Dichlorvos	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3545A / 3541 / 8270D (EPA SW-846) [SAM Tier I]
Dicrotophos	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3545A / 3541 / 8270D (EPA SW-846) [SAM Tier I]
Diesel Range Organics	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C.	Wipe outside of each 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	Ch. 4 / 3541 / 3545A / 8015C (EPA SW-846) [SAM Tier I]
Diisopropyl methylphosphonate (DIMP) (degradation product of GB)[5]	10 – 40 mL	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract and analyze samples within 7 days of collection.	Store between 0°C and 6°C.	Wipe outside of each 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	E2866-12 (ASTM) [SAM Tier II]

Solid Samples							
Analyte	**Sample Size[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Dimethylphosphite[5]	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Minimize transport and storage time; if feasible, analyze or extract immediately upon receipt at the laboratory.	Cool to ≤ 6°C.	Wipe outside of each 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). (Air-tight container containing activated carbon.)	Standard carrier shipping label AND Organophosphorus compound, toxic, solid, n.o.s, 6.1, Poison, UN3464	Ch. 4 / 3570 / 8270D (EPA SW-846) / Footnote (8) [SAM Tier II]
Dimethylphosphoramidic acid (degradation product GA)[5]	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool to 4°C.	Wipe outside of each 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 compound, toxic, solid, n.o.s, 6.1, Poison, UN3464	Ch. 4 / 3541 / 3545A / 8321B (EPA SW-846) [ISAM Tier II]
Diphacinone	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C.	Wipe outside of each 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, solid, toxic, 6.1, Poison, UN3026	Ch. 4 / 3541 / 3545A / 8321B (EPA SW-846) [SAM Tier III]
Disulfoton	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3570 / 8270D (EPA SW-846) [SAM Tier II]
Disulfoton sulfone oxon	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3541 / 3545A / 8270D (EPA SW-846) [SAM Tier III]

Solid Samples							
Analyte	**Sample Size[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Disulfoton sulfoxide	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3541 / 3545A / 8270D (EPA SW-846) [SAM Tier III]
Disulfoton sulfoxide oxon	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3541 / 3545A / 8270D (EPA SW-846) [SAM Tier III]
1,4-Dithiane (degradation product of HD)[5]	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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. See Footnote (2) when adding liquid preservatives such as methanol or bisulfate	Ch. 4 / 3570 / 8270D (EPA SW-846) [SAM Tier II]
EA2192 [S-2-(diisopropylamino) ethyl methylphosphonothioic acid] (hydrolysis product of VX)[5]	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Minimize transport and storage time; if feasible, analyze or extract immediately upon receipt at the laboratory.	Cool to ≤ 6°C.	TBD[7] Air-tight container containing activated carbon	TBD[7]	Ch. 4 / 3541 / 3545A / 8321B (EPA SW-846) / Footnote (8) [SAM Tier III]
Ethyl methyl phosphonic acid (EMPA) (degradation product of VX)[5]	10 – 100g	Glass jars with PTFE-lined caps demonstrated to be free of interferences	Analyze samples within 7 days of collection.	Store between 0°C and 6°C.	Wipe outside of each 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 compound, toxic, solid, n.o.s, 6.1, Poison, UN3464	E2866-12 (ASTM) [SAM Tier II]

Solid Samples							
Analyte	**Sample Size[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Ethyldichloroarsine (ED)[5]	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Minimize transport and storage time; if feasible, analyze or extract immediately upon receipt at the laboratory.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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 Ethyldichloroarsine, 6.1, Poison, UN1892	Ch. 4 / 3541 / 3545A / 8270D (EPA SW-846) [SAM Tier III]
N-Ethyldiethanolamine (EDEA) (degradation product of HN-1)[5]	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C.	Wipe outside of each 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). (Air-tight container containing activated carbon)	Standard carrier shipping label	Ch. 4 / 3541 / 3545A / 8321B (EPA SW-846) / Footnote (8) [SAM Tier III]
Ethylene oxide	5 – 20 g When collected without preservative, fill the container, leaving no headspace.	40 mL VOA vial (with septum) and magnetic stirring bar	14 days	Preserve to pH ≤ 2 with $NaHSO_4$ (low analyte concentrations) or methanol (high analyte concentrations) and cool to 4°C. Freeze unpreserved samples at negative (-) 7°C. (Frozen vials should be placed on their side.)	Wipe outside of each vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film. Wrap glass vials 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). See Footnote (2) when adding liquid preservatives such as methanol or bisulfate.	Ch. 4 / 5035A / 8260C (EPA SW-846) [ISAM Tier I]
Fenamiphos[5]	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3570 / 8270D (EPA SW-846) [SAM Tier II]
Fentanyl	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C.	Wipe outside of each 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	Ch. 4 / 3541 / 3545A / 8321B (EPA SW-846) [SAM Tier III]
Fluoride	Not of concern in this sample type						

Solid Samples							
Analyte	**Sample Size[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Fluoroacetamide	TBD	TBD	TBD	TBD	TBD	Standard carrier shipping label	Adapted from Journal of Chromatography B, 876(1):103-108 [SAM Tier II]
Fluoroacetic acid and fluoroacetate salts (analyze as fluoroacetate ion)[5]	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Analyze samples within 7 days.	Cool to 4*C.	Wipe outside of each 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	J.Chrom A 1139 (2007) 271-278 [SAM Tier III]
2-Fluoroethanol	5 – 20 g When collected without preservative, fill the container, leaving no headspace.	40 mL VOA vial (with septum) and magnetic stirring bar.	14 days	Preserve to pH ≤ 2 with $NaHSO_4$ (low analyte concentrations) or methanol (high analyte concentrations) and cool to 4°C. Freeze unpreserved samples at negative (-) 7°C. (Frozen vials should be placed on their side.)	Wipe outside of each vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film. Wrap glass vials with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label	Ch. 4 / 5035A / 8260C (EPA SW-846) [SAM Tier III]
Formaldehyde	25 – 100 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract and analyze within 30 days of collection. All derivatized sample extracts should be analyzed within 3 days after preparation.	Refrigerate at 4°C (solid extracts should be buffered to pH 5.0 to minimize the formation of artifact formaldehyde).	Wipe outside of each 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 Formaldehyde (concentration dependent, refer to 40 CFR 172.101 for more information)	Ch. 4 / 8315A (EPA SW-846) [SAM Tier I]
Gasoline Range Organics	5 – 20 g When collected without preservative, fill the container, leaving no headspace.	40 mL VOA vial (with septum) and magnetic stirring bar	14 days	Preserve to pH ≤ 2 with $NaHSO_4$ (low analyte concentrations) or methanol (high analyte concentrations) and cool to 4°C. Freeze unpreserved samples at negative (-) 7°C. (Frozen vials should be placed on their side.)	Wipe outside of each vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film. Wrap glass vials with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier AND Gasoline identification set, 2.3, Poison gas, NA9035. See Footnote (2) when adding liquid preservatives such as methanol or bisulfate.	Ch. 4 / 5035A / 8015C (EPA SW-846) [SAM Tier I]

Solid Samples							
Analyte	**Sample Size[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	10 – 40 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Store samples and extracts at ≤ 4°C in the dark. After air drying, soil and solid samples can be stored at room temperature.	Wipe outside of each 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 RDX, 1.1, Explosive, UN0483	Ch. 4 / 8330B (EPA SW-846) [SAM Tier I]
Hexamethylenetriperoxidediamine (HMTD)[5]	10 – 40 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Store samples and extracts at ≤ 4°C in the dark. After air drying, soil and solid samples can be stored at room temperature.	Wipe outside of each 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).	Forbidden	Ch. 4 / 8330B (EPA SW-846) / Analyst 2001 126:1689-1693 [SAM Tier II]
Hydrogen bromide	Not of concern in this sample type						
Hydrogen chloride	Not of concern in this sample type						
Hydrogen cyanide	Not of concern in this sample type						
Hydrogen fluoride	Not of concern in this sample type						
Hydrogen sulfide	Not of concern in this sample type						
Isopropyl methylphosphonic acid (IMPA) (degradation product of GB)[5]	10 – 100g	Glass jars with PTFE-lined caps demonstrated to be free of interferences	The samples are to be extracted, filtered and analyzed by LC/MS/MS within 7 days of collection.	Cool between 0°C and 6°C.	Wipe outside of each 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 compound, toxic, solid, n.o.s, 6.1, Poison, UN3464	E2866-12 (ASTM) [SAM Tier II]
Kerosene[5]	5 – 20 g When collected without preservative, fill the container, leaving no headspace.	40 mL VOA vial (with septum) and magnetic stirring bar	14 days	Preserve to pH ≤ 2 with $NaHSO_4$ (low analyte concentrations) or methanol (high analyte concentrations) and cool to 4°C. Freeze unpreserved samples at negative (-) 7°C. (Frozen vials should be placed on their side.)	Wipe outside of each vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film. Wrap glass vials with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Kerosene, 3, Flammable, UN1223. See Footnote (2) when adding liquid preservatives such as methanol or bisulfate.	Ch. 4 / 5035A / 8015C (EPA SW-846) [SAM Tier I]
Lead arsenate (analyze as total arsenic)	200 g	PTFE, plastic or glass. If using 6020A, only PTFE or fluorocarbon containers are recommended. (special cleaning needed).[11]	Digest samples as soon as possible after arrival; analyze within 180 days of digestion.	None	Wipe outside of each 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 Lead arsenate, 6.1, Poison, UN1617	Ch. 3 / 3050B / 6010C / 6020A (EPA SW-846) [SAM Tier I]

Solid Samples							
Analyte	**Sample Size[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Lewisite oxide (degradation product of Lewisite)[5] (analyze as total arsenic)	200 g	PTFE, plastic or glass. If using 6020A, only PTFE or fluorocarbon containers are recommended. (special cleaning needed).[11]	Extract samples within 14 days of collection; analyze within 40 days of extraction.	None	Wipe outside of each 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 Arsenic compounds, solid, n.o.s, 6.1, Poison, UN1557	Ch. 3 / 3050B / 6010C / 6020A (EPA SW-846) / Footnote (8) [SAM Tier I]
Mercuric chloride (analyze as total mercury)	200 g	PTFE, plastic or glass	28 days	Acidify to pH < 2 with nitric acid.	Wipe outside of each 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 Mercuric chloride, 6.1, Poison, UN1624	Ch. 3 / 7473 (EPA SW-846) [SAM Tier I]
Mercury, Total	200 g	PTFE, plastic or glass	28 days	Acidify to pH < 2 with nitric acid.	Wipe outside of each 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 Mercury, 8, Corrosive, UN2809	Ch. 3 / 7473 (EPA SW-846) [SAM Tier I]
Methamidophos	TBD	250 mL PTFE centrifuge tube	Analyze immediately or store at negative (-) 18˚C.	Cool to ≤ 6°C.	TBD	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783	Adapted from Journal of Chromatography A, 1154(1): 3-25 [SAM Tier II]
Methomyl	20 – 80 g	Clear, wide mouth glass jar with PTFE-lined lid	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store at 4 (±2)°C and out of direct sunlight.	Wipe outside of each 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 Carbamate pesticides, solid, toxic, 6.1, UN2757	8318A (EPA SW-846) [SAM Tier II]
Methoxyethylmercuric acetate (analyze as total mercury)[5]	200 g	PTFE, plastic or glass	28 days	Acidify to pH < 2 with nitric acid.	Wipe outside of each 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 Mercury compounds, solid, n.o.s, 6.1, Poison, UN2025	Ch. 3 / 7473 (EPA SW-846) [SAM Tier I]
Methyl acrylonitrile	20 – 80 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C.	Wipe outside of each container clean using a damp, then dry cloth. Seal the bottle with non-reactive tape or film. Wrap glass bottles with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Methyl acryonitrile, 3.0, Flammable Liquid, 6.1, Poison, UN3079	5035A / 8260C (EPA SW-846) [SAM Tier II]

Solid Samples							
Analyte	**Sample Size[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Methyl fluoroacetate (analyze as fluoroacetate ion) [5]	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Analyze samples within 7 days.	Cool to 4°C.	Wipe outside of each 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	J. Chrom A 1139 (2007) 271-278 [SAM Tier III]
Methyl hydrazine[5]	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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 Methyl hydrazine, 6.1, Poison, UN1244	J. Chrom. 1993 617 157-162 [SAM Tier III]
Methyl isocyanate	Not of concern in this sample type						
Methyl paraoxon	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract sample within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	3541 / 3545A / 8270D (EPA SW-846) [III]
Methyl parathion	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3541 / 3545A / 8270D (EPA SW-846) [SAM Tier I]
Methylamine	Not of concern in this sample type						
N-Methyldiethanolamine (MDEA) (degradation product of HN-2)[5]	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C.	Wipe outside of each 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	Ch. 4 / 3541 / 3545A / 8321B (EPA SW-846) [SAM Tier III]

Solid Samples							
Analyte	**Sample Size[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Methylphosphonic acid (MPA) (degradation product of VX, GB, & GD)[5]	10 – 100 g	Glass jars with PTFE-lined caps demonstrated to be free of interferences	Analyze samples within 7 days of collection.	Store between 0°C and 6°C.	Wipe outside of each 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 compound, toxic, solid, n.o.s, 6.1, Poison, UN3464	E2866-12 (ASTM) [SAM Tier II]
Mevinphos	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3541 / 3545A / 8270D (EPA SW-846) [SAM Tier I]
Monocrotophos	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3541 / 3545A / 8270D (EPA SW-846) [SAM Tier I]
Nicotine compounds (analyze as nicotine)	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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 Nicotine compounds, solid, n.o.s, 6.1, Poison, UN1655	Ch. 4 / 3545A / 8270D (EPA SW-846) [SAM Tier II]
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	10 – 40 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Store samples and extracts at ≤ 4°C in the dark. After air drying, soil and solid samples can be stored at room temperature.	Wipe outside of each 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	Ch. 4 / 8330B (EPA SW-846) [SAM Tier I]

Solid Samples							
Analyte	**Sample Size[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Osmium tetraoxide (analyze as total osmium)[5]	200 g	PTFE, plastic or glass. If using 6020A, only PTFE or fluorocarbon containers are recommended. (special cleaning needed).[11]	Digest samples as soon as possible after arrival; analyze within 180 days of digestion.	None	Wipe outside of each 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 Osmium tetroxide, 6.1, Poison, UN2471	Ch. 3 / 3050B / 6010C (EPA SW-846) [SAM Tier II]
Oxamyl	20 – 80 g	Clear, wide mouth glass jar with PTFE-lined lid	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store at 4 (±2)°C and out of direct sunlight.	Wipe outside of each 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 Carbamate pesticides, solid, toxic, 6.1, UN2757	Ch. 4 / 8318A (EPA SW-846) [SAM Tier II]
Paraoxon	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3541 / 3545A / 8270D (EPA SW-846) [SAM Tier III]
Paraquat	5 – 20 g	Clear, wide mouth glass jar with PTFE-lined lid	Analyze samples within 7 days.	Cool to 4°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. Chrom A, 1139 (2007) 271-278 [SAM Tier II]
Parathion	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3541 / 3545A / 8270D (EPA SW-846) [SAM Tier I]
Pentaerythritol tetranitrate (PETN)	10 – 40 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Store samples and extracts at ≤ 4°C in the dark. After air drying, soil and solid samples can be stored at room temperature.	Wipe outside of each 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).	Forbidden	Ch. 4 / 8330B (EPA SW-846) [SAM Tier I]

Solid Samples							
Analyte	**Sample Size[(1)]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[(2)]**	**Source/SAM Method[(3)]**
Phencyclidine	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3570 (EPA SW-846) [SAM Tier II]
Phorate	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3545A / 8270D (EPA SW-846) [SAM Tier I]
Phorate sulfone	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3541 / 3545A / 8270D (EPA SW-846) [SAM Tier III]
Phorate sulfone oxon	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3541 / 3545A / 8270D (EPA SW-846) [SAM Tier III]
Phorate sulfoxide	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3545A / 8270D (EPA SW-846) [SAM Tier III]

Solid Samples							
Analyte	**Sample Size[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Phorate sulfoxide oxon	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3541 / 3545A / 8270D (EPA SW-846) [SAM Tier III]
Phosgene	Not of concern in this sample type						
Phosphamidon	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	3541 / 3545A / 8270D (EPA SW-846) [SAM Tier I]
Phosphine	Not of concern in this sample type						
Phosphorus trichloride	Not of concern in this sample type						
Pinacolyl methyl phosphonic acid (PMPA) (degradation product of GD)[5]	10 – 100 g	Glass jars with PTFE-lined caps demonstrated to be free of interferences	The samples are to be extracted filtered and analyzed within 7 days of collection.	Store between 0°C and 6°C.	Wipe outside of each 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 compound, toxic, solid, n.o.s, 6.1, Poison, UN3464	E2866-12 (ASTM) [SAM Tier II]
Propylene oxide[5]	5 – 20 g When collected without preservative, fill the container, leaving no headspace.	40 mL VOA vial (with septum) and magnetic stirring bar.	Stable for 7 days on ice and 14 days with chemical preservatives. Analyze as soon as practical.	Preserve to pH ≤ 2 with $NaHSO_4$ (low analyte concentrations) or methanol (high analyte concentrations) and cool to 4°C. Freeze unpreserved samples at negative (-) 7°C. (Frozen vials should be placed on their side.)	Wipe outside of each vial clean using a damp, then dry cloth. Seal the vial with non-reactive tape or film. Wrap glass vials with bubble wrap. Pack samples as described in Footnote (4).	Standard carrier shipping label AND Propylene oxide, 3, Flammable, UN1280. See Footnote (2) when adding liquid preservatives such as methanol or bisulfate.	Ch. 4 / 5035A / 8260C (EPA SW-846) [SAM Tier II]
Sodium arsenite (analyze as total arsenic)[5]	200 g	PTFE, plastic or glass. If using 6020A, only PTFE or fluorocarbon containers are recommended. (special cleaning needed).[11]	Digest samples as soon as possible after arrival; analyze within 180 days of digestion.	None	Wipe outside of each 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 Sodium arsenite, solid, 6.1, Poison, UN2027	Ch. 3 / 3050B / 6010C / 6020A (EPA SW-846) [SAM Tier I]

Solid Samples							
Analyte	**Sample Size[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Sodium azide (analyze as azide ion)	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Analyze samples within 28 days.	Cool to 4°C.	Wipe outside of each 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 Sodium azide, 6.1, Poison, UN1687	Adapted from J. of Forensic Sciences, 43(1): 200-202 / 300.1, Rev 1.0 (EPA OW) [SAM Tier II]
Strychnine	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	3541 / 3545A / 8270D (EPA SW-846) [SAM Tier I]
Tetraethyl pyrophosphate[5] (TEPP)	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3570 / 8270D (EPA SW-846) [SAM Tier II]
Tetramethylene-disulfotetramine[5] (TETS)	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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 Pesticides, solid, toxic, n.o.s, 6.1, Poison, UN2588	Ch. 4 / 3541 / 3545A / 8270D (EPA SW-846) [SAM Tier II]
Thallium sulfate (analyze as total thallium)	200 g	PTFE, plastic or glass. If using 6020A, only PTFE or fluorocarbon containers are recommended. (special cleaning needed).[11]	Digest samples as soon as possible after arrival; analyze within 180 days of digestion.	None	Wipe outside of each 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 Thallium compounds n.o.s, 6.1, Poison, UN1707	Ch. 3 / 3050B / 6010C / 6020A (EPA SW-846) [SAM Tier I]

Solid Samples							
Analyte	**Sample Size[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Thiodiglycol (TDG) (degradation product of HD)[5]	10 – 100 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract and analyze within 7 days of sample collection.	Cool between 0°C and 6°C.	Wipe outside of each 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). (Air-tight container containing activated carbon.)	Standard carrier shipping label AND Aviation regulated solid, n.o.s, UN3335	E2787-11 (ASTM) [SAM Tier II]
Thiofanox	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Minimize transport and storage time; if feasible, analyze or extract immediately upon receipt at the laboratory.	Cool to ≤ 6°C.	Wipe outside of each 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). (Air-tight container containing activated carbon)	Standard carrier shipping label AND Carbamate pesticides, solid, toxic, 6.1, UN2757	Ch. 4 / 3541 / 3545A / 8321B (EPA SW-846) [SAM Tier III]
1,4-Thioxane (degradation product of HD)[5]	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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 Flammable Liquids, n.o.s, 3, Flammable, UN1993	Ch. 4 / 3545A / 8270D (EPA SW-846) [SAM Tier II]
Titanium tetrachloride (analyze as total titanium)[5]	200 g	PTFE, plastic or glass. If using 6020A, only PTFE or fluorocarbon containers are recommended. (special cleaning needed).[11]	Digest samples as soon as possible after arrival; analyze within 180 days of digestion.	None	Wipe outside of each 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 Titanium tetrachloride, 8, Corrosive, UN1838	Ch. 3 / 3050B / 6010C / 6020A (EPA SW-846) [SAM Tier I]
Triethanolamine (TEA) (degradation product of HN-3)[5]	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C.	Wipe outside of each 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 Ethanolamine solutions, 8, Corrosive, UN2491	Ch. 4 / 3541 / 3545A / 8321B (EPA SW-846) [SAM Tier III]

Solid Samples							
Analyte	**Sample Size[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Trimethyl phosphite[5]	30 – 120 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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 Trimethyl phosphite, 3, Flammable, UN2329	Ch. 4 / 3541 / 3545A / 8270D (EPA SW-846) [SAM Tier III]
1,3,5-Trinitrobenzene (1,3,5-TNB)	10 – 40 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Store samples and extracts at ≤ 4°C in the dark. After air drying, soil and solid samples can be stored at room temperature.	Wipe outside of each 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 Trinitrobenzene and trinitrotoluene mixtures, 1.1, Explosive, UN0388	Ch. 4 / 8330B (EPA SW-846) [SAM Tier I]
2,4,6-Trinitrotoluene (2,4,6-TNT)	10 – 40 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Store samples and extracts at ≤ 4°C in the dark. After air drying, soil and solid samples can be stored at room temperature.	Wipe outside of each 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 Trinitrobenzene and trinitrotoluene mixtures, 1.1, Explosive, UN0388	Ch. 4 / 8330B (EPA SW-846) [SAM Tier I]
Vanadium pentoxide (analyze as total vanadium)	200 g	PTFE, plastic or glass. If using 6020A, only PTFE or fluorocarbon containers are recommended. (special cleaning needed).[11]	Digest samples as soon as possible after arrival; analyze within 180 days of digestion.	None	Wipe outside of each 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 Vanadium pentoxide, 6.1, Poison, UN2862	3050B / 6010C / 6020A (EPA SW-846) [SAM Tier I]
White phosphorus	40 – 160 g	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Soil / sediment samples can be held indefinitely if sealed tightly to eliminate moisture loss. Extracts with isooctane should be analyzed within 30 days.	Cool to 4°C and store in the dark.	Wipe outside of each 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 Phosphorus, white (dry or wetted), 4.2, Spontaneously combustible, 6.1, Poison, UN1381	7580 (EPA SW-846) [SAM Tier I]

Wipe Samples							
Analyte	**Sample Size[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Acephate	TBD	250 mL PTFE centrifuge tube	Analyze immediately or store at negative (-) 18°C.	Cool to ≤ 6°C.	TBD	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783	Adapted from Journal of Chromatography A, 1154(1): 3-25 [SAM Tier III]
Acrylamide	1 wipe/100cm^2 or 1 wipe/ft^2	250 mL wide-mouth glass container with PTFE-lined septa or lid	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C.	Wipe outside of each 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 Acrylamide, solid, 6.1, Poison, UN2074	Ch. 4 / 3570 / 8290A Appendix A / 8316 (EPA SW-846) [SAM Tier III]
Acrylonitrile	1 wipe/100cm^2 or 1 wipe/ft^2	250 mL wide-mouth glass container with PTFE-lined septa or lid	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C.	Wipe outside of each 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 Acrylonitrile, stabilized, 3, Flammable liquid, 6.1, Poison, UN1093	Ch. 4 / 3570 / 8290A Appendix A / 8260C (EPA SW-846) [SAM Tier III]
Aldicarb (Temik)	1 wipe/100cm^2 or 1 wipe/ft^2	Clear, wide mouth glass jar with PTFE-lined lid	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store at 4 (±2)°C and out of direct sunlight.	Wipe outside of each 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 Carbamate pesticides, solid, toxic, 6.1, UN2757	Ch. 4 / 3570 / 8290A Appendix A / 8318A (EPA SW-846) [SAM Tier III]
Aldicarb sulfone	1 wipe/100cm^2 or 1 wipe/ft^2	Clear, wide mouth glass jar with PTFE-lined lid	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store at 4 (±2)°C and out of direct sunlight.	Wipe outside of each 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 Carbamate pesticides, solid, toxic, 6.1, UN2757	Ch. 4 / 3570 / 8290A Appendix A / 8318A (EPA SW-846) [SAM Tier III]
Aldicarb sulfoxide	1 wipe/100cm^2 or 1 wipe/ft^2	Clear, wide mouth glass jar with PTFE-lined lid	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store at 4 (±2)°C and out of direct sunlight.	Wipe outside of each 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 Carbamate pesticides, solid, toxic, 6.1, UN2757	Ch. 4 / 3570 / 8290A Appendix A / 8318A (EPA SW-846) [SAM Tier III]
Allyl alcohol	Not of concern in this sample type						
4-Aminopyridine	1 wipe/100cm^2 or 1 wipe/ft^2	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store samples and extracts at ≤ 4°C in the dark. After air drying, soil and solid samples can be stored at room tem/ature.	Wipe outside of each 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 Aminopyridines, 6.1, Poison, UN2671	Ch. 4 / 3570 / 8290A Appendix A / 8330B (EPA SW-846) [SAM Tier III]
Ammonia	Not of concern in this sample type						
Ammonium metavanadate (analyze as total vanadium)	TBD	PTFE, plastic or glass. If using 6020A, only PTFE or fluorocarbon containers are recommended. (special cleaning needed).[11]	Digest samples as soon as possible after arrival; analyze within 180 days of digestion.	None	Wipe outside of each 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 Ammonium metavanadate, 6.1, Poison, UN2859	Ch. 3 / 9102 (NIOSH) / 6010C / 6020A (EPA SW-846) [SAM Tier I]

Wipe Samples							
Analyte	**Sample Size[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Arsenic, Total	TBD	PTFE, plastic or glass. If using 6020A only PTFE or fluorocarbon containers are recommended. (special cleaning needed).[11]	Digest samples as soon as possible after arrival; analyze within 180 days of digestion.	None	Wipe outside of each 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 Arsenic, 6.1, Poison, UN1558	9102 (NIOSH) / Ch. 3 / 6010C / 6020A (EPA SW-846) [SAM Tier I]
Arsenic trioxide (analyze as total arsenic)	TBD	PTFE, plastic or glass. If using 6020A only PTFE or fluorocarbon containers are recommended. (special cleaning needed).[11]	Digest samples as soon as possible after arrival; analyze within 180 days of digestion.	None	Wipe outside of each 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 Arsenic trioxide, 6.1, Poison, UN1561	9102 (NIOSH) / Ch. 3 / 6010C / 6020A (EPA SW-846) [SAM Tier I]
Arsine[5] (analyze as total arsenic in non-air samples)	TBD	PTFE, plastic or glass. If using 6020A only PTFE or fluorocarbon containers are recommended. (special cleaning needed).[11]	Digest samples as soon as possible after arrival; analyze within 180 days of digestion.	None	Wipe outside of each 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 Arsine, 2.3 (2.1), Poisonous gas, UN2188	9102 (NIOSH) / 6010C / 6020A (EPA SW-846) [SAM Tier I]
Asbestos	1 particle-free wipe/100 cm^2	Clean, sealable container	None	None	Wipe outside of each 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	D6480-05 (hard surfaces-wipes) (ASTM) [SAM Tier I]
Boron trifluoride	Not of concern in this sample type						
Brodifacoum	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C.	Wipe outside of each 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, solid, toxic, 6.1, Poison, UN3026	Ch. 4 / 3570 / 8290A Appendix A (EPA SW-846) [SAM Tier III]
Bromadiolone[5]	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C.	Wipe outside of each 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, solid, toxic, 6.1, Poison, UN3026	Ch. 4 / 3570 / 8290A Appendix A / 8321B (EPA SW-846) [SAM Tier III]
Calcium arsenate (analyze as total arsenic)	TBD	PTFE, plastic or glass. If using 6020A only PTFE or fluorocarbon containers are recommended. (special cleaning needed).[11]	Digest samples as soon as possible after arrival; analyze within 180 days of digestion.	None	Wipe outside of each 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 Calcium arsenate, 6.1, Poison, UN1573	9102 (NIOSH) / Ch. 3 / 6010C / 6020A (EPA SW-846) [SAM Tier I]
Carbofuran (Furadan)	1 wipe/100cm^2 or 1 wipe/ft^2	Clear, wide mouth glass jar with PTFE-lined lid	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store at 4 (±2)°C and out of direct sunlight.	Wipe outside of each 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 Carbamate pesticides, solid, toxic, 6.1, UN2757	Ch. 4 / 3570 / 8290A Appendix A / 8318A (EPA SW-846) [SAM Tier III]
Carbon disulfide	Not of concern in this sample type						

Wipe Samples							
Analyte	**Sample Size[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Carfentanil	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C.	Wipe outside of each 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	Ch. 4 / 3570 / 8290A Appendix A / 8321B (EPA SW-846) [SAM Tier III]
Chlorfenvinphos	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3570 / 8290A Appendix A / 8270D (EPA SW-846) [SAM Tier II]
Chlorine	Not of concern in this sample type						
2-Chloroethanol	Not of concern in this sample type						
3-Chloro-1,2-propanediol[5]	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Eur. J. Lipid Sci. Technol. 2011, 113-345-355 [SAM Tier III]
Chloropicrin[5]	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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). (Air-tight container containing activated carbon)	Standard carrier shipping label AND Chloropicrin, 6.1, Poison, UN1580	Ch. 4 / 3570 / 8290A Appendix A / 8270D (EPA SW-846) [SAM Tier II]
Chlorpyrifos	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3570 / 8290A Appendix A / 8270D (EPA SW-846) [SAM Tier II]
Chlorpyrifos oxon	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3570 / 8290A Appendix A / 8270D (EPA SW-846) [SAM Tier III]

Wipe Samples							
Analyte	**Sample Size[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Crimidine[5]	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3570 / 8290A Appendix A / 8270D (EPA SW-846) [SAM Tier II]
Cyanide, Amenable to chlorination	TBD	Glass or polyethylene bottle (1 L size)	14 days	Cool to 4°C.	Wipe outside of each 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 Cyanide inorganic solid n.o.s, 6.1, Poison, UN1588	3135.2I (EPA Regional Lab) [SAM Tier III]
Cyanide, Total	TBD	Glass or polyethylene bottles	12 days after sample receipt.	Protect from light and ice or refrigerate at 4 (±2)°C from collection until digestion. Add 0.6 g of asorbic acid for each liter of sample volume.	Wipe outside of each 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). (Air-tight container containing activated carbon)	Standard carrier shipping label AND Cyanides, inorganic, solid, n.o.s, 6.1, Poison, UN1588	ISM 01.3 CN (EPA CLP) [SAM Tier III]
Cyanogen chloride[5]	Not of concern in this sample type						
1,2-Dichloroethane (degradation product of HD)	Not of concern in this sample type						
Dichlorvos	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3570 / 8290A Appendix A / 8270D (EPA SW-846) [SAM Tier II]
Dicrotophos	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3570 / 8290A Appendix A / 8270D (EPA SW-846) [SAM Tier II]
Diesel Range Organics	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C.	Wipe outside of each 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	Ch. 4 / 3570 / 8290A Appendix A / 8015C (EPA SW-846) [SAM Tier I]

Wipe Samples							
Analyte	**Sample Size[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Diisopropyl methyl-phosphonate (DIMP) (degradation product of GB)[5]	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C.	Wipe outside of each 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	Ch. 4 / 3570 / 8290A Appendix A / 8321B (EPA SW-846) [SAM Tier II]
Dimethyl-phosphite[5]	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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). (Air-tight container containing activated carbon)	Standard carrier shipping label AND Organophosphorus compound, toxic, solid, n.o.s, 6.1, Poison, UN3464	Ch. 4 / 3570 / 8290A Appendix A / 8270D (EPA SW-846) [SAM Tier II]
Dimethyl-phosphoramidic acid (degradation product of GA)[5]	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C.	Wipe outside of each 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 compound, toxic, solid, n.o.s, 6.1, Poison, UN3464	Ch. 4 / 3570 / 8290A Appendix A / 8321B (EPA SW-846) [SAM Tier III]
Diphacinone	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C.	Wipe outside of each 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, solid, toxic, 6.1, Poison, UN3026	Ch. 4 / 3570 / 8290A Appendix A / 8321B (EPA SW-846) [SAM Tier III]
Disulfoton	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3570 / 8290A Appendix A / 8270D (EPA SW-846) [SAM Tier II]
Disulfoton sulfone oxon	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3570 / 8290A Appendix A / 8270D (EPA SW-846) [SAM Tier III]

Wipe Samples							
Analyte	**Sample Size[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Disulfoton sulfoxide	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3570 / 8290A Appendix A / 8270D (EPA SW-846) [SAM Tier III]
Disulfoton sulfoxide oxon	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3570 / 8290A Appendix A / 8270D (EPA SW-846) [SAM Tier III]
1,4-Dithiane (degradation product of HD)[5]	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C.	Wipe outside of each 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. See Footnote (2) when adding liquid preservatives such as methanol or bisulfate	Ch. 4 / 3570 / 8290A Appendix A / 8270D (EPA SW-846) [SAM Tier II]
EA2192 [S-2-(diisopropyl amino) ethylmethyl phosphonothioic acid] (hydrolysis product of VX)[5]	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C.	TBD[7] Air-tight container containing activated carbon	TBD[7]	Ch. 4 / 3570 / 8290A Appendix A / 8321B (EPA SW-846) [SAM Tier III]
Ethyl methyl phosphonic acid (EMPA) (degradation product of VX)[5]	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C.	Wipe outside of each 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 compound, toxic, solid, n.o.s, 6.1, Poison, UN3464	Ch. 4 / 3570 / 8290A Appendix A / 8321B (EPA SW-846) [SAM Tier II]
Ethyl-dichloroarsine (ED)[5]	TBD	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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 Ethyldichloroarsine, 6.1, Poison, UN1892	9102 (NIOSH) / Ch. 4 / 8270D (EPA SW-846) [SAM Tier III]
N-Ethyldiethanol-amine (EDEA) (degradation product of HN-1)[5]	2 wipes/100 cm^2	125 mL polypropylene straight-side jar with a polypropylene screw cap	Samples should be extracted and analyzed within 48 hours of collection or as soon as possible.	Cool to ≤ 6°C.	Wipe outside of each 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	EPA 600/R-11/145 (EPA/NIOSH) [SAM Tier II]

Wipe Samples							
Analyte	**Sample Size[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Ethylene oxide	Not of concern in this sample type						
Fenamiphos[5]	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3570 / 8290A Appendix A / 8270D (EPA SW-846) [SAM Tier II]
Fentanyl	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C.	Wipe outside of each 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	Ch. 4 / 3570 / 8290A Appendix A / 8321B (EPA SW-846) [SAM Tier III]
Fluoride	Not of concern in this sample type						
Fluoroacetamide	TBD	TBD	TBD	TBD	TBD	Standard carrier shipping label	Adapted from Journal of Chromatography B, 876(1):103-108 [SAM Tier III]
Fluoroacetic acid and fluoroacetate salts (analyze as fluoroacetate ion)[5]	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Analyze samples within 7 days.	Cool to 4°C.	Wipe outside of each 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	J. Chrom. A, 1139 (2007) 271-278 [SAM Tier III]
2-Fluoroethanol	Not of concern in this sample type						
Formaldehyde	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract and analyze within 30 days of collection. All derivatized sample extracts should be analyzed within 3 days after preparation.	Cool to 4°C.	Wipe outside of each 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 Formaldehyde (concentration dependent, refer to 40 CFR 172.101 for more information).	Ch. 4 / 3570 / 8290A Appendix A / 8315A (EPA SW-846) [SAM Tier III]
Gasoline Range Organics	1 wipe/100cm^2 or 1 wipe/ft^2	40 mL VOA vial (with septum) and magnetic stirring bar	14 days	Cool to 4°C.	Wipe outside of each 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 AND Gasoline identification set, 2.3, Poison gas, NA9035. See Footnote (2) when adding liquid preservatives such as methanol or bisulfate.	Ch. 4 / 3570 / 8290A Appendix A / 8015C (EPA SW-846) [SAM Tier I]

Wipe Samples							
Analyte	**Sample Size[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Store samples and extracts at ≤ 4°C in the dark. After air drying, soil and solid samples can be stored at room tem/ature.	Wipe outside of each 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 RDX, 1.1, Explosive, UN0483	Ch. 4 / 3570 / 8290A Appendix A / 8330B (EPA SW-846) [SAM Tier I]
Hexamethylene-triperoxidediamine (HMTD)[5]	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Store samples and extracts at ≤ 4°C in the dark. After air drying, soil and solid samples can be stored at room tem/ature.	Wipe outside of each 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).	Forbidden	Ch. 4 / 3570 / 8290A Appendix A / 8330B (EPA SW-846) / Adapted from Analyst (2001) 126:1689-1693 [SAM Tier III]
Hydrogen bromide	Not of concern in this sample type						
Hydrogen chloride	Not of concern in this sample type						
Hydrogen cyanide	Not of concern in this sample type						
Hydrogen fluoride	Not of concern in this sample type						
Hydrogen sulfide	Not of concern in this sample type						
Isopropyl methyl-phosphonic acid (IMPA) (degradation product of GB)[5]	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C.	Wipe outside of each 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 compound, toxic, solid, n.o.s, 6.1, Poison, UN3464	Ch. 4 / 3570 / 8290A Appendix A / 8321B (EPA SW-846) [SAM Tier II]
Kerosene[5]	1 wipe/100cm^2 or 1 wipe/ft^2	40-mL VOA vial (with septum) and magnetic stirring bar	14 days	Cool to 4°C.	Wipe outside of each 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 Kerosene, 3, Flammable, UN1223. See Footnote (2) when adding liquid preservatives such as methanol or bisulfate.	Ch. 4 / 3570 / 8290A Appendix A / 8015C (EPA SW-846) [SAM Tier I]
Lead arsenate (analyze as total arsenic)	TBD	PTFE, plastic or glass. If using 6020A, only PTFE or fluorocarbon containers are recommended. (special cleaning needed).[11]	Digest samples as soon as possible after arrival; analyze within 180 days of digestion.	None	Wipe outside of each 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 Lead arsenate, 6.1, Poison, UN1617	9102 (NIOSH) / Ch. 3 / 6010C / 6020A (EPA SW-846) [SAM Tier I]
Lewisite oxide (degradation product of Lewisite)[5] (analyze as total arsenic)	TBD	PTFE, plastic or glass. If using 6020A, only PTFE or fluorocarbon containers are recommended. (special cleaning needed).[11]	Minimize transport and storage time; if feasible, analyze or extract immediately upon receipt at the laboratory.	None	Wipe outside of each 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 Arsenic compounds, solid, n.o.s, 6.1, Poison, UN1557	9102 (NIOSH) / Ch. 3 / 6010C / 6020A (EPA SW-846) [SAM Tier I]

Wipe Samples							
Analyte	**Sample Size[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Mercuric chloride (analyze as total mercury)	TBD	PTFE, plastic or glass	28 days	None	Wipe outside of each 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 Mercuric chloride, 6.1, Poison, UN1624	Ch. 3 / 9102 (NIOSH) / 7473 (EPA SW-846) [SAM Tier I]
Mercury, Total	TBD	PTFE, plastic or glass	28 days	None	Wipe outside of each 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 Mercury, 8, Corrosive, UN2809	Ch. 3 / 9102 (NIOSH) / 7473 (EPA SW-846) [SAM Tier I]
Methamidophos	TBD	250 mL PTFE centrifuge tube	Analyze immediately or store at negative (-) 18°C	TBD	TBD	Standard carrier shipping label AND Organophosphorus pesticides, solid, 6.1, Poison, UN2783	Adapted from Journal of Chromatography A, 1154(1): 3-25 [SAM Tier III]
Methomyl	1 wipe/100cm^2 or 1 wipe/ft^2	Clear, wide mouth glass jar with PTFE-lined lid	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store at 4 (±2)°C and out of direct sunlight.	Wipe outside of each 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 Carbamate pesticides, solid, toxic, 6.1, UN2757	Ch. 4 / 3570 / 8290 Appendix A / 8318A (EPA SW-846) [SAM Tier III]
Methoxyethyl-mercuric acetate (analyze as total mercury)[5]	TBD	PTFE, plastic or glass	28 days	None	Wipe outside of each 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 Mercury compounds, solid, n.o.s, 6.1, Poison, UN2025	Ch. 3 / 9102 (NIOSH) / 7473 (EPA SW-846) [SAM Tier I]
Methyl acrylonitrile	1 wipe/100cm^2 or 1 wipe/ft^2	250 mL wide-mouth glass container with PTFE-lined septa or lid	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C.	Wipe outside of each 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 Methyl acryonitrile, 3.0, Flammable Liquid, 6.1, Poison, UN3079	Ch. 4 / 3570 / 8290 Appendix A / 8260C (EPA SW-846) [III]
Methyl fluoroacetate (analyze as fluoroacetate ion)[5]	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Analyze samples within 7 days.	Cool to 4°C.	Wipe outside of each 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	Adapted from J. Chrom A, 1139 (2007) 271-278 [SAM Tier III]
Methyl hydrazine[5]	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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 Methyl hydrazine, 6.1, Poison, UN1244	Ch. 4 / 3570 / 8290 Appendix A / 8270D (EPA SW-846) / J. Chrom. 1993 (617), 157-162 [SAM Tier III]
Methyl isocyanate	Not of concern in this sample type						

Wipe Samples							
Analyte	**Sample Size[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Methyl paraoxon	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3570 / 8290 Appendix A / 8270D (EPA SW-846) [SAM Tier III]
Methyl parathion	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3570 / 8290 Appendix A / 8270D (EPA SW-846) [SAM Tier II]
Methylamine	Not of concern in this sample type						
N-Methyl-diethanolamine (MDEA) (degradation product of HN-2)[5]	1 wipe/100cm^2 or 1 wipe/ft^2	125 mL polypropylene straight-side jar with a polypropylene screw cap	Samples should be extracted and analyzed within 48 hours of collection or as soon as possible.	Cool to ≤ 6°C.	Wipe outside of each 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	EPA 600/R-11/114 (EPA/NIOSH) [SAM Tier II]
Methyl-phosphonic acid (MPA) (degradation product of VX, GB, & GD)[5]	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C.	Wipe outside of each 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 compound, toxic, solid, n.o.s, 6.1, Poison, UN3464	Ch. 4 / 3570 / 8290 Appendix A / 8321B (EPA SW-846) [SAM Tier II]
Mevinphos	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3570 / 8290 Appendix A / 8270D (EPA SW-846) [SAM Tier II]
Monocrotophos	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3570 / 8290 Appendix A / 8270D (EPA SW-846) [SAM Tier III]

Wipe Samples							
Analyte	**Sample Size[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Nicotine compounds (analyze as nicotine)	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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 Nicotine compounds, solid, n.o.s, 6.1, Poison, UN1655	Ch. 4 / 3570 / 8290 Appendix A / 8270D (EPA SW-846) [SAM Tier II]
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Store samples and extracts at ≤ 4°C in the dark. After air drying, soil and solid samples can be stored at room tem/ature.	Wipe outside of each 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	Ch. 4 / 3570 / 8290 Appendix A / 8330B (EPA SW-846) [SAM Tier I]
Osmium tetraoxide (analyze as total osmium)[5]	TBD	PTFE, plastic or glass. If using 6020A, only PTFE or fluorocarbon containers are recommended. (special cleaning needed).[11]	Digest samples as soon as possible after arrival; analyze within 180 days of digestion.	None	Wipe outside of each 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 Osmium tetroxide, 6.1, Poison, UN2471	9102 (NIOSH) / Ch. 3 / 6010C (EPA SW-846) [SAM Tier III]
Oxamyl	1 wipe/100cm^2 or 1 wipe/ft^2	Clear, wide mouth glass jar with PTFE-lined lid	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store at 4 (±2)°C and out of direct sunlight.	Wipe outside of each 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 Carbamate pesticides, solid, toxic, 6.1, UN2757	Ch. 4 / 3570 / 8290 Appendix A / 8318A (EPA SW-846) [SAM Tier III]
Paraoxon	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3570 / 8290 Appendix A / 8270D (EPA SW-846) [SAM Tier III]
Paraquat	1 wipe/100cm^2 or 1 wipe/ft^2	Clear, wide mouth glass jar with PTFE-lined lid	Analyze samples within 7 days.	Cool to 4°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. Chrom A, 1139 (2007) 271-278 [SAM Tier III]
Parathion	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3570 / 8290 Appendix A / 8270D (EPA SW-846) [SAM Tier II]

Wipe Samples							
Analyte	**Sample Size[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Pentaerythritol tetranitrate (PETN)	1 wipe/100cm^2 or 1 wipe/ft^2	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store samples and extracts at ≤ 4°C in the dark. After air drying, soil and solid samples can be stored at room tem/ature.	Wipe outside of each 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).	Forbidden	Ch. 4 / 3570 / 8290 Appendix A / 8330B (EPA SW-846) [SAM Tier I]
Phencyclidine	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C.	Wipe outside of each 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	Ch. 4 / 3570 / 8290 Appendix A / 8270D (EPA SW-846) [SAM Tier II]
Phorate	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3570 / 8290 Appendix A / 8270D (EPA SW-846) [SAM Tier II]
Phorate sulfone	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3570 / 8290 Appendix A / 8270D (EPA SW-846) [SAM Tier III]
Phorate sulfone oxon	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3570 / 8290 Appendix A / 8270D (EPA SW-846) [SAM Tier III]
Phorate sulfoxide	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3570 / 8290 Appendix A / 8270D (EPA SW-846) [SAM Tier III]

Wipe Samples							
Analyte	**Sample Size[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Phorate sulfoxide oxon	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3570 / 8290 Appendix A / 8270D (EPA SW-846) [SAM Tier III]
Phosgene	Not of concern in this sample type						
Phosphamidon	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3570 / 8290 Appendix A / 8270D (EPA SW-846) [SAM Tier II]
Phosphine	Not of concern in this sample type						
Phosphorus trichloride	Not of concern in this sample type						
Pinacolyl methyl phosphonic acid (PMPA) (degradation product of GD)[5]	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C.	Wipe outside of each 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 compound, toxic, solid, n.o.s, 6.1, Poison, UN3464	Ch. 4 / 3570 / 8290 Appendix A / 8321B (EPA SW-846) [SAM Tier II]
Propylene oxide[5]	Not of concern in this sample type						
Sodium arsenite (analyze as total arsenic)[5]	TBD	PTFE, plastic or glass. If using 6020A, only PTFE or fluorocarbon containers are recommended. (special cleaning needed).[11]	Digest samples as soon as possible after arrival; analyze within 180 days of digestion.	None	Wipe outside of each 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 Sodium arsenite, solid, 6.1, Poison, UN2027	9102 (NIOSH) / Ch. 3 / 6010C / 6020A (EPA SW-846) [SAM Tier I]
Sodium azide (analyze as azide ion)	TBD	Filter / Sorbent tube (PVC or quartz filter with silica coated sorbent [150 mg/75 mg])	Analyze samples stored at room tem/ature within 10 days.	Refrigerate when not in transit.	TBD	Standard carrier shipping label AND Sodium azide, 6.1, Poison, UN1687	ID-211 (OSHA) [SAM Tier I]
Strychnine	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3570 / 8290 Appendix A / 8270D (EPA SW-846) [SAM Tier II]

Wipe Samples							
Analyte	**Sample Size[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Tetraethyl pyrophosphate[5] (TEPP)	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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	Ch. 4 / 3570 / 8290 Appendix A / 8270D (EPA SW-846) [SAM Tier II]
Tetramethylene disulfotetramine [5] (TETS)	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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 Pesticides, solid, toxic, n.o.s, 6.1, Poison, UN2588	Ch. 4 / 3570 / 8290 Appendix A / 8270D (EPA SW-846) [SAM Tier II]
Thallium sulfate (analyze as total thallium)	TBD	PTFE, plastic or glass. If using 6020A, only PTFE or fluorocarbon containers are recommended. (special cleaning needed).[11]	Digest samples as soon as possible after arrival; analyze within 180 days of digestion.	None	Wipe outside of each 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 Thallium compounds n.o.s, 6.1, Poison, UN1707	9102 (NIOSH) / Ch. 3 / 6010C / 6020A (EPA SW-846) [SAM Tier I]
Thiodiglycol (TDG) (degradation product of HD)[5]	1 wipe/100cm^2 or 1 wipe/ft^2	70 mL VOA vial with PTFE-lined cap	Extract and analyze within 7 days of sample collection.	Cool between 0°C and 6°C. .	Wipe outside of each 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). (Air-tight container containing activated carbon)	Standard carrier shipping label AND Aviation regulated solid, n.o.s, UN3335	Ch. 4 / 3570 / 8290 Appendix A / 8321B (EPA SW-846) [SAM Tier II]
Thiofanox	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool to ≤ 6°C.	Wipe outside of each 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). (Air-tight container containing activated carbon)	Standard carrier shipping label AND Carbamate pesticides, solid, toxic, 6.1, UN2757	Ch. 4 / 3570 / 8290 Appendix A / 8321B (EPA SW-846) [III]
1,4-Thioxane (degradation product of HD)[5]	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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 Flammable Liquids, n.o.s, 3, Flammable, UN1993	Ch. 4 / 3570 / 8290 Appendix A / 8270D (EPA SW-846) [SAM Tier II]
Titanium tetrachloride (analyze as total titanium)[5]	TBD	PTFE, plastic or glass. If using 6020A, only PTFE or fluorocarbon containers are recommended. (special cleaning needed).[11]	Digest samples as soon as possible after arrival; analyze within 180 days of digestion.	None	Wipe outside of each 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 Titanium tetrachloride, 8, Corrosive, UN1838	9102 (NIOSH) / Ch. 3 / 6010C / 6020A (EPA SW-846) [SAM Tier III]

Wipe Samples							
Analyte	**Sample Size[1]**	**Sample Container**	**Holding Time**	**Sample Preservation or Preparation**	**Packaging Requirements**	**Shipping Label[2]**	**Source/SAM Method[3]**
Triethanolamine (TEA) (degradation product of HN-3)[5]	2 wipes/100 cm^2	125 mL polypropylene straight-side jar with a polypropylene screw cap	Samples should be extracted and analyzed within 48 hours of collection or as soon as possible.	Cool to ≤ 6°C.	Wipe outside of each 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 Ethanolamine solutions, 8, Corrosive, UN2491	EPA 600/R-11/114 (EPA/NIOSH) [SAM Tier II]
Trimethyl phosphite[5]	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 14 days of collection; analyze within 40 days of extraction.	Cool samples to ≤ 6°C and store extracts at negative (-) 10°C in the dark.	Wipe outside of each 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 Trimethyl phosphite, 3, Flammable, UN2329	Ch. 4 / 3570 / 8290 Appendix A / 8270D (EPA SW-846) [SAM Tier III]
1,3,5-Trinitrobenzene (1,3,5-TNB)	1 wipe/100cm^2 or 1 wipe/ft^2	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store samples and extracts at ≤ 4°C in the dark. After air drying, soil and solid samples can be stored at room tem/ature.	Wipe outside of each 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 Trinitrobenzene and trinitrotoluene mixtures, 1.1, Explosive, UN0388	Ch. 4 / 3570 / 8290 Appendix A / 8330B (EPA SW-846) [SAM Tier I]
2,4,6-Trinitrotoluene (2,4,6-TNT)	1 wipe/100cm^2 or 1 wipe/ft^2	Amber glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Extract samples within 7 days of collection; analyze within 40 days of extraction.	Store samples and extracts at ≤ 4°C in the dark. After air drying, soil and solid samples can be stored at room tem/ature.	Wipe outside of each 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 Trinitrobenzene and trinitrotoluene mixtures, 1.1, Explosive, UN0388	Ch. 4 / 3570 / 8290 Appendix A / 8330B (EPA SW-846) [SAM Tier I]
Vanadium pentoxide (analyze as total vanadium)	TBD	PTFE, plastic or glass. If using 6020A, only PTFE or fluorocarbon containers are recommended. (special cleaning needed).[11]	Digest samples as soon as possible after arrival; analyze within 180 days of digestion.	None	Wipe outside of each 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 Vanadium pentoxide, 6.1, Poison, UN2862	9102 (NIOSH) / Ch. 3 / 6010C / 6020A (EPA SW-846) [SAM Tier I]
White phosphorus	1 wipe/100cm^2 or 1 wipe/ft^2	Wide mouth glass or PTFE container with PTFE-lined septum or lid. When PTFE-lined septa or lids are not available, solvent rinsed aluminum foil may be used as a liner.	Soil / sediment samples can be held indefinitely if sealed tightly to eliminate moisture loss. Extracts with isooctane should be analyzed within 30 days.	Cool to 4°C and store in the dark.	Wipe outside of each 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 Phosphorus, white (dry or wetted), 4.2, Spontaneously combustible, 6.1, Poison, UN1381	Ch. 4 / 3570 / 8290 Appendix A / 7580 (EPA SW-846) [SAM Tier III]

Footnotes:

(1) Sample sizes are based on a range covering the minimum amount needed for analysis of a single sample up to additional sample amounts that 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 samples be collected in case of the need for reanalysis due to sample spillage or unforseen analytical difficulties. Where possible, sample sizes are based on specifications included in the SAM analytical methods. 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.

(2) 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 2.1 or Division 2.3. 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 Class 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.

(3) SAM methods listed in this column can be located using U.S. Environmental Protection Agency, National Homeland Security Research Center (NHSRC), Selected Analytical Methods for Environmental Remediation and Recovery (SAM), 2012.

(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≤ 4°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) Currently, no information is available for this analyte in this matrix. Until such time that analyte-specific information is available, collection procedures described for a similar analyte are considered to be appropriate.

(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) DOT regulations currently do not address labeling, packaging, and shipping of chemical warfare agents (CWAs) or this degradation product. Shipment of samples suspected of containing these compounds should be determined by the overseeing regulatory authority and must be in compliance with U.S. Department of Defense and/or Department of Homeland Security regulations. Under current U.S. Army regulations (AR 50-6, AR 385-61 and DA PAM 385-61), samples are analyzed and decontaminated on site, and are not removed until CWAs are no longer detected.

(8) In addition to the SAM method listed, the "Organisation for the Prohibition of Chemical Weapons, Quality System Documents" was also used as a source of information.

(9) Sodium thiosulfate or sodium sulfite should be added to treated drinking water or wastewater samples containing residual chlorine. For sodium thiosulfate, an amount equivalent to the following is recommended: 3 mL of a 10% sodium thiosulfate solution per gallon of sample (or 0.008%). For sodium sulfite, an amount equivalent to the following is recommended: to 1-L sample, add 40 - 50 mg of solid sodium sulfite with stiring or shaking. This solution can be added to the sample container prior to collection or after collection and prior to sample preservation.

(10) When samples are preserved with methanol or sodium bisulfate, quantity limitations apply. To avoid samples to be considered DOT hazardous material, ensure each container holds less than a net of 1 L (0.3 gal) of methanol or aqueous bisulfate. If these volumes are exceeded, the outer container must be marked as: "Methanol, 3, UN1230, Ltd Qty." In addition, a DOT label marked "Flammable Liquid, Class 3" should be affixed to the outer container. In the case of sodium bisulfate preservative, the outer container also should be marked "Bisulfate, aqueous solution, 8, UN2837, Ltd Qty" and a DOT label marked "Corrosive material, Class 8" is required.

(11) 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.

(12) 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.

(13) 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.

(14) An organic solid sample is a solid that completely dissolves in an organic solvent and leaves no solid residue.

Attachment B

Sample Collection Information for the Radiochemical Analytes and Methods Listed in SAM 2012

Attachment B: Sample Collection Information for the Radiochemical Analytes and Methods Listed in SAM 2012

Air Filters

Packaging Requirements: Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reative tape or film. Determine the radiation-specific activity of the sample(s) and pack samples outside the contaminated area as described in Footnote (4).
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 (5).

Analyte	Sample Size[1]	Sample Container[2]	Holding Time[2]	Sample Preservative or Preparation[2]	Source/SAM Method[3]
Gross Alpha	1 filter (limited to counting geometry size)	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months.	No preservation required. Analyze as is without preparation.	FRMAC, Vol. 2, pg. 33 (DOE)
Gross Beta	1 filter (limited to counting geometry size)	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 170 days based on half-life of Ir-192 of 173 days.	No preservation required. Analyze as is without preparation.	FRMAC, Vol. 2, pg. 33 (DOE)
Gamma Select Mixed Fission Products	1 filter (limited to counting geometry size)	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 65 hours based on half-life of Mo-99 of 65.94 hours.	No preservation required. Analyze as is without preparation.	Ga-01-R (HASL-300)
Total Activity Screening	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months.	No preservation required.	Preparation of Samples for Total Activity Screening (Y-12)

Air Filters — Qualitative Determination

Packaging Requirements: Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reative tape or film. Determine the radiation-specific activity of the sample(s) and pack samples outside the contaminated area as described in Footnote (4).
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 (5).

Analyte	Sample Size[1]	Sample Container[2]	Holding Time[2]	Sample Preservative or Preparation[2]	Source/SAM Method[3]
Americium-241 (alpha) Plutonium-238 Plutonium-239 Radium-226 Uranium-238 Uranium-234 Uranium-235	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months.	No preservation required. Analyze as is without preparation.	Rapid Methods for Acid or Fusion Digestion (EPA)
Californium-252 Curium-244	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months.	No preservation required. Analyze as is without preparation.	D3084-05 (ASTM)
Americium-241 (gamma) Cesium-137 Cobalt-60 Europium-154 Ruthenium-103 Ruthenium-106	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months.	No preservation required. Analyze as is without preparation.	Ga-01-R (HASL-300)

Analyte	Sample Size[1]	Sample Container[2]	Holding Time[2]	Sample Preservative or Preparation[2]	Source/SAM Method[3]
Iodine-125	1 charcoal cartridge	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 59 days based on half-life of I-125 of 59.4 days.	No preservation required. Analyze as is without preparation.	Procedure #9[6] (ORISE)
Iodine-131	Charcoal or silver zeolite cartridge	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 8 days based on half-life of I-131 of 8.03 days.	No preservation required. Analyze as is without preparation.	Ga-01-R[6] (HASL-300)
Iridium-192	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 170 days based on half-life of Ir-192 of 173 days.	No preservation required. Analyze as is without preparation.	Ga-01-R (HASL-300)
Molybdenum-99	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 65 hours based on half-life of Mo-99 of 65.94 hours.	No preservation required. Analyze as is without preparation.	Ga-01-R (HASL-300)
Phosphorus-32	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 14 days based on half-life of P-32 of 14.26 days.	No preservation required.	RESL P-2 (DOE)
Polonium-210	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months.	No preservation required. Analyze as is without preparation.	Method 111 (EPA)
Selenium-75	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 120 days based on half-life of Se-75 of 120 days.	No preservation required. Analyze as is without preparation.	Ga-01-R (HASL-300)
Strontium-89	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 50 days based on half-life of Sr-89 of 50.53 days.	No preservation required.	Strontium in Food and Bioenvironmental Samples (EPA)
Strontium-90	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months.	No preservation required. Analyze as is without preparation.	Rapid Methods for Acid or Fusion Digestion (EPA)
Technetium-99	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months.	No preservation required. Analyze as is without preparation.	AP5 (ORISE)
Tritium (Hydrogen-3)	Not of concern in this sample type				

Air Filters — Confirmatory

Packaging Requirements: Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reative tape or film. Determine the radiation-specific activity of the sample(s) and pack samples outside the contaminated area as described in Footnote (4).
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 (5).

Analyte	Sample Size[1]	Sample Container[2]	Holding Time[2]	Sample Preservative or Preparation[2]	Source/SAM Method[3]
Americium-241 (alpha) Californium-252 Curium-244	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months.	No preservation required. Analyze as is without preparation.	Am-04-RC (HASL-300)

Analyte	Sample Size[1]	Sample Container[2]	Holding Time[2]	Sample Preservative or Preparation[2]	Source/SAM Method[3]
Americium-241 (gamma) Cesium-137 Cobalt-60 Europium-154 Ruthenium-103 Ruthenium-106	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months.	No preservation required. Analyze as is without preparation.	Ga-01-R (HASL-300)
Iodine-125	1 charcoal cartridge	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 59 days based on half-life of I-125 of 59.4 days.	No preservation required. Analyze as is without preparation.	Procedure #9[6] (ORISE)
Iodine-131	1 charcoal or silver zeolite cartridge	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 8 days based on half-life of I-131 of 8.03 days.	No preservation required. Analyze as is without preparation.	Ga-01-R[6] (HASL-300)
Iridium-192	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 170 days based on half-life of Ir-192 of 173 days.	No preservation required. Analyze as is without preparation.	Ga-01-R (HASL-300)
Molybdenum-99	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 65 hours based on half-life of Mo-99 of 65.94 hours.	No preservation required. Analyze as is without preparation.	Ga-01-R (HASL-300)
Phosphorus-32	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 14 days based on half-life of P-32 of 14.26 days.	No preservation required.	RESL P-2 (DOE)
Plutonium-238 Plutonium-239 Uranium-238 Uranium-234 Uranium-235	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months.	No preservation required. Analyze as is without preparation.	EMSL-33 (EPA)
Polonium-210	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months.	No preservation required. Analyze as is without preparation.	Method 111 (EPA)
Radium-226	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months.	No preservation required. Analyze as is without preparation.	EMSL-19 (EPA)
Selenium-75	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 120 days based on half-life of Se-75 of 120 days.	No preservation required. Analyze as is without preparation.	Ga-01-R (HASL-300)
Strontium-89	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 50 days based on half-life of Sr-89 of 50.53 days.	No preservation required.	Strontium in Food and Bioenvironmental Samples (EPA)
Strontium-90	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months.	No preservation required. Analyze as is without preparation.	Sr-03-RC (HASL-300)
Technetium-99	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months.	No preservation required. Analyze as is without preparation.	AP5 (ORISE)
Tritium (Hydrogen-3)	Not applicable				

Analyte	Sample Size[1]	Sample Container[2]	Holding Time[2]	Sample Preservative or Preparation[2]	Source/SAM Method[3]
Americium-241 (gamma) Cesium-137 Cobalt-60 Europium-154 Ruthenium-103 Ruthenium-106	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months.	No preservation required. Analyze as is without preparation.	Ga-01-R (HASL-300)
Iodine-125	1 charcoal cartridge	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 59 days based on half-life of I-125 of 59.4 days.	No preservation required. Analyze as is without preparation.	Procedure #9[6] (ORISE)
Iodine-131	1 charcoal or silver zeolite cartridge	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 8 days based on half-life of I-131 of 8.03 days.	No preservation required. Analyze as is without preparation.	Ga-01-R[6] (HASL-300)
Iridium-192	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 170 days based on half-life of Ir-192 of 173 days.	No preservation required. Analyze as is without preparation.	Ga-01-R (HASL-300)
Molybdenum-99	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 65 hours based on half-life of Mo-99 of 65.94 hours.	No preservation required. Analyze as is without preparation.	Ga-01-R (HASL-300)
Phosphorus-32	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 14 days based on half-life of P-32 of 14.26 days.	No preservation required.	RESL P-2 (DOE)
Plutonium-238 Plutonium-239 Uranium-238 Uranium-234 Uranium-235	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months.	No preservation required. Analyze as is without preparation.	EMSL-33 (EPA)
Polonium-210	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months.	No preservation required. Analyze as is without preparation.	Method 111 (EPA)
Radium-226	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months.	No preservation required. Analyze as is without preparation.	EMSL-19 (EPA)
Selenium-75	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 120 days based on half-life of Se-75 of 120 days.	No preservation required. Analyze as is without preparation.	Ga-01-R (HASL-300)
Strontium-89	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 50 days based on half-life of Sr-89 of 50.53 days.	No preservation required.	Strontium in Food and Bioenvironmental Samples (EPA)
Strontium-90	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months.	No preservation required. Analyze as is without preparation.	Sr-03-RC (HASL-300)
Technetium-99	1 filter	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag	Maximum 6 months.	No preservation required. Analyze as is without preparation.	AP5 (ORISE)
Tritium (Hydrogen-3)	Not applicable				

Aqueous & Liquid Phase Samples

Packaging Requirements: Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reative tape or film. Wrap glass containers with bubble wrap. Determine the radiation-specific activity of the sample(s) and pack samples outside the contaminated area as described in Footnote (4).
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 (5).

Analyte	Sample Size[1]	Sample Container[2]	Holding Time[2]	Sample Preservative or Preparation[2]	Source/SAM Method[3]
Gross Alpha	1 L (solids limited)	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months.	Preserve sample with nitric or hydrochloric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	7110 B (SM)
Gross Beta	1 L (solids limited)	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 170 days based on half-life of Ir-192 of 173 days.	Preserve sample with nitric or hydrochloric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	7110 B (SM)
Gamma Select Mixed Fission Products	Volume or mass equivalent to calibration standard, approx. 0.5 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 65 hours based on half-life of Mo-99 of 65.94 hours.	Preserve sample with nitric or hydrochloric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	Ga-01-R (HASL-300)
Total Activity Screening	2 mL	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months.	No preservation required. Analyze as is without preparation.	Preparation of Samples for Total Activity Screening (Y-12)

Aqueous & Liquid Phase — Qualitative Determination

Packaging Requirements: Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reative tape or film. Wrap glass containers with bubble wrap. Determine the radiation-specific activity of the sample(s) and pack samples outside the contaminated area as described in Footnote (4).
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 (5).

Analyte	Sample Size[1]	Sample Container[2]	Holding Time[2]	Sample Preservative or Preparation[2]	Source/SAM Method[3]
Americium-241 (alpha) Californium-252 Curium-244 Plutonium-238 Plutonium-239	1 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months.	Preserve sample with nitric or hydrochloric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	D3084-05 (ASTM)
Americium-241 (gamma) Cesium-137 Cobalt-60 Europium-154 Ruthenium-103 Ruthenium-106	Volume or mass equivalent to calibration standard, approx. 0.5 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months.	Preserve sample with nitric or hydrochloric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	7120 (SM)

Analyte	Sample Size[1]	Sample Container[2]	Holding Time[2]	Sample Preservative or Preparation[2]	Source/SAM Method[3]
Iodine-125	0.1 L	Borosilicate glass small-mouth bottle	Maximum 59 days based on half-life of I-125 of 59.4 days.	No preservation required.	Procedure #9 (ORISE)
Iodine-131	Volume or mass equivalent to calibration standard, approx. 0.5 – 4 L	Borosilicate glass small-mouth bottle	Maximum 8 days based on half-life of I-131 of 8.03 days.	No preservation required. Analyze as is without preparation.	Ga-01-R (HASL-300)
Iridium-192	Volume or mass equivalent to calibration standard, approx. 0.5 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 170 days based on half-life of Ir-192 of 173 days.	Preserve sample with nitric or hydrochloric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	7120 (SM)
Molybdenum-99	Volume or mass equivalent to calibration standard, approx. 0.5 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 65 hours based on half-life of Mo-99 of 65.94 hours.	Preserve sample with nitric or hydrochloric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	Ga-01-R (HASL-300)
Phosphorus-32	0.2 – 1 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 14 days based on half-life of P-32 of 14.26 days.	Preserve sample with nitric or hydrochloric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	R4-73-014 (EPA)
Polonium-210	2.5 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months.	Preserve sample with nitric or hydrochloric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	Po-02-RC (HASL-300)
Radium-226	1 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months.	Preserve sample with nitric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	7500-Ra B (SM)
Selenium-75	Volume or mass equivalent to calibration standard, approx. 0.5 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 120 days based on half-life of Se-75 of 120 days.	Preserve sample with nitric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	7120 (SM)
Strontium-89	0.5 L – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 50 days based on half-life of Sr-89 of 50.53 days.	Preserve sample with nitric or hydrochloric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	905.0 (EPA)
Strontium-90	1 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months.	Preserve sample with nitric or hydrochloric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	D5811-08 (ASTM)
Technetium-99	1 L (See method Note 2 for additional sample size considerations)	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months.	No preservation required.	D7168-05 (ASTM)

Analyte	Sample Size[1]	Sample Container[2]	Holding Time[2]	Sample Preservative or Preparation[2]	Source/SAM Method[3]
Tritium (Hydrogen-3)	1 L	Borosilicate glass small-mouth bottle	Maximum 6 months.	No preservation required.	906.0 (EPA)
Uranium-238 Uranium-234 Uranium-235	1 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months.	Preserve sample with nitric or hydrochloric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	7500-U B (SM)
Aqueous & Liquid Phase — Confirmatory					
Packaging Requirements: Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reative tape or film. Wrap glass containers with bubble wrap. Determine the radiation-specific activity of the sample(s) and pack samples outside the contaminated area as described in Footnote (4). **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 (5).					
Americium-241 (alpha) Californium-252 Curium-244	0.1 – 1 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months.	Preserve sample with nitric or hydrochloric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	Am-04-RC (HASL-300)
Americium-241 (gamma) Cesium-137 Cobalt-60 Europium-154 Ruthenium-103 Ruthenium-106	Volume or mass equivalent to calibration standard, approx. 0.5 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months.	Preserve sample with nitric or hydrochloric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	7120 (SM)
Iodine-125	0.1 L	Borosilicate glass small-mouth bottle	Maximum 59 days based on half-life of I-125 of 59.4 days.	No preservation required.	Procedure #9 (ORISE)
Iodine-131	Volume or mass equivalent to calibration standard, approx. 0.5 – 4 L	Borosilicate glass small-mouth bottle	Maximum 8 days based on half-life of I-131 of 8.03 days.	No preservation required. Analyze as is without preparation.	Ga-01-R (HASL-300)
Iridium-192	Volume or mass equivalent to calibration standard, approx. 0.5 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 170 days based on half-life of Ir-192 of 173 days.	Preserve sample with nitric or hydrochloric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	7120 (SM)
Molybdenum-99	Volume or mass equivalent to calibration standard, approx. 0.5 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 65 hours based on half-life of Mo-99 of 65.94 hours.	Preserve sample with nitric or hydrochloric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	Ga-01-R (HASL-300)
Phosphorus-32	0.2 – 1 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 14 days based on half-life of P-32 of 14.26 days.	Preserve sample with nitric or hydrochloric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	R4-73-014 (EPA)

Analyte	Sample Size[1]	Sample Container[2]	Holding Time[2]	Sample Preservative or Preparation[2]	Source/SAM Method[3]
Plutonium-238 Plutonium-239	1 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months.	Preserve sample with nitric or hydrochloric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	EMSL-33 (EPA)
Polonium-210	2.5 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months.	Preserve sample with nitric or hydrochloric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	Po-02-RC (HASL-300)
Radium-226	0.5 L – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months.	Preserve sample with nitric or hydrochloric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	7500-Ra C (SM)
Selenium-75	Volume or mass equivalent to calibration standard, approx. 0.5 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 120 days based on half-life of Se-75 of 120 days.	Preserve sample with nitric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	7120 (SM)
Strontium-89	0.5 L – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 50 days based on half-life of Sr-89 of 50.53 days.	Preserve sample with nitric or hydrochloric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	905.0 (EPA)
Strontium-90	1 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months.	Preserve sample with nitric or hydrochloric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	D5811-08 (ASTM)
Technetium-99	1 L (See method Note 2 for additional sample size considerations)	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months.	No preservation required.	D7168-05 (ASTM)
Tritium (Hydrogen-3)	1 L	Borosilicate glass small-mouth bottle	Maximum 6 months.	No preservation required.	906.0 (EPA)
Uranium-238 Uranium-234 Uranium-235	1 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months.	Preserve sample with nitric or hydrochloric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	7500-U C (SM)

Drinking Water Samples					
Packaging Requirements: Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reative tape or film. Wrap glass containers with bubble wrap. Determine the radiation-specific activity of the sample(s) and pack samples outside the contaminated area as described in Footnote (4). **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 (5).					
Analyte	**Sample Size[1]**	**Sample Container[2]**	**Holding Time[2]**	**Sample Preservative or Preparation[2]**	**Source/SAM Method[3]**
Gross Alpha	1 L (solids limited)	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months.	Preserve sample with nitric or hydrochloric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	900.0 (EPA)
Gross Beta	1 L (solids limited)	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 170 days based on half-life of Ir-192 of 173 days.	Preserve sample with nitric or hydrochloric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	900.0 (EPA)
Gamma Select Mixed Fission Products	Volume equivalent to calibration standard, approx. 0.5 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 65 hours based on half-life of Mo-99 of 65.94 hours.	Preserve sample with nitric or hydrochloric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	901.1 (EPA)
Total Activity Screening	0.2 L per analyte group or a minimum of 0.8 L for all analytes listed	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months.	No preservation required. Analyze as is without preparation.	Preparation of Samples for Total Activity Screening (Y-12)
Drinking Water — Qualitative Determination					
Packaging Requirements: Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reative tape or film. Wrap glass containers with bubble wrap. Determine the radiation-specific activity of the sample(s) and pack samples outside the contaminated area as described in Footnote (4). **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 (5).					
Californium-252 Curium-244	1 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months.	Preserve sample with nitric or hydrochloric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	D3084-05 (ASTM)
Americium-241 (alpha) Plutonium-238 Plutonium-239 Radium-226 Uranium-234 Uranium-235 Uranium-238	0.2 L per analyte group (americium, plutonium, radium, uranium) or a minimum of 0.8 L for all analytes listed	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months.	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.	Rapid Radiochemical Methods (EPA)
Amercium-241 (gamma) Cesium-137 Cobalt-60 Europium-154 Ruthenium-103 Ruthenium-106	Volume or mass equivalent to calibration standard, approx. 0.5 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months.	Preserve sample with nitric or hydrochloric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	901.1 (EPA)

Analyte	Sample Size[1]	Sample Container[2]	Holding Time[2]	Sample Preservative or Preparation[2]	Source/SAM Method[3]
Iodine-125	0.1 L	Borosilicate glass small-mouth bottle	Maximum 59 days based on half-life of I-125 of 59.4 days.	No preservation required.	Procedure #9 (ORISE)
Iodine-131	Volume or mass equivalent to calibration standard, approx. 0.5 – 4 L	Borosilicate glass small-mouth bottle	Maximum 8 days based on half-life of I-131 of 8.03 days.	No preservation required. Analyze as is without preparation.	901.1 (EPA)
Iridium-192	Volume or mass equivalent to calibration standard, approx. 0.5 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 170 days based on half-life of Ir-192 of 173 days.	Preserve sample with nitric or hydrochloric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	901.1 (EPA)
Molybdenum-99	Volume or mass equivalent to calibration standard, approx. 0.5 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 65 hours based on half-life of Mo-99 of 65.94 hours.	Preserve sample with nitric or hydrochloric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	901.1 (EPA)
Phosphorus-32	1 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 14 days based on half-life of P-32 of 14.26 days.	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.	Rapid Radiochemical Method for P-32 in Water (EPA)
Polonium-210	2.5 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months.	Preserve sample with nitric or hydrochloric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	Po-02-RC (HASL-300)
Selenium-75	Volume or mass equivalent to calibration standard, approx. 0.5 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 120 days based on half-life of Se-75 of 120 days.	Preserve sample with nitric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	901.1 (EPA)
Strontium-89	0.5 L – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 50 days based on half-life of Sr-89 of 50.53 days.	Preserve sample with nitric or hydrochloric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	905.0 (EPA)
Strontium-90	0.5 L	Samples should be collected in 1 L plastic containers	Maximum 6 months.	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 HNO3 to achieve a pH <2.	Rapid Radiochemical Methods (EPA)
Technetium-99	1 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months.	Preserve sample with nitric or hydrochloric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	Tc-02-RC (HASL-300)

Analyte	Sample Size[1]	Sample Container[2]	Holding Time[2]	Sample Preservative or Preparation[2]	Source/SAM Method[3]
Tritium (Hydrogen-3)	1 L	Borosilicate glass small-mouth bottle	Maximum 6 months.	No preservation required.	906.0 (EPA)
Drinking Water — Confirmatory					
Packaging Requirements: Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reative tape or film. Wrap glass containers with bubble wrap. Determine the radiation-specific activity of the sample(s) and pack samples outside the contaminated area as described in Footnote (4). **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 (5).					
Analyte	**Sample Size[1]**	**Sample Container[2]**	**Holding Time[2]**	**Sample Preservative or Preparation[2]**	**Source/SAM Method[3]**
Americium-241 (alpha) Californium-252 Curium-244	0.1 – 1 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months.	Preserve sample with nitric or hydrochloric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	Am-04-RC (HASL-300)
Americium-241 (gamma) Cesium-137 Cobalt-60 Europium-154 Ruthenium-103 Ruthenium-106	Volume or mass equivalent to calibration standard, approx. 0.5 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months.	Preserve sample with nitric or hydrochloric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	901.1 (EPA)
Iodine-125	0.1 L	Borosilicate glass small-mouth bottle	Maximum 59 days based on half-life of I-125 of 59.4 days.	No preservation required.	Procedure #9 (ORISE)
Iodine-131	Volume or mass equivalent to calibration standard, approx. 0.5 – 4 L	Borosilicate glass small-mouth bottle	Maximum 8 days based on half-life of I-131 of 8.03 days.	No preservation required. Analyze as is without preparation.	901.1 (EPA)
Iridium-192	Volume or mass equivalent to calibration standard, approx. 0.5 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 170 days based on half-life of Ir-192 of 173 days.	Preserve sample with nitric or hydrochloric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	901.1 (EPA)
Molybdenum-99	Volume or mass equivalent to calibration standard, approx. 0.5 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 65 hours based on half-life of Mo-99 of 65.94 hours.	Preserve sample with nitric or hydrochloric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	901.1 (EPA)
Phosphorus-32	0.2 – 1 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 14 days based on half-life of P-32 of 14.26 days.	Preserve sample with nitric or hydrochloric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	R4-73-014 (EPA)
Plutonium-238 Plutonium-239	1 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months.	Preserve sample with nitric or hydrochloric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	EMSL-33 (EPA)

Analyte	Sample Size[1]	Sample Container[2]	Holding Time[2]	Sample Preservative or Preparation[2]	Source/SAM Method[3]
Polonium-210	2.5 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months.	Preserve sample with nitric or hydrochloric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	Po-02-RC (HASL-300)
Radium-226	1 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months.	Preserve sample with nitric or hydrochloric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	903.1 (EPA)
Selenium-75	Volume or mass equivalent to calibration standard, approx. 0.5 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 120 days based on half-life of Se-75 of 120 days.	Preserve sample with nitric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	901.1 (EPA)
Strontium-89 Strontium-90	0.5 L – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 50 days based on half-life of Sr-89 of 50.53 days.	Preserve sample with nitric or hydrochloric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	905.0 (EPA)
Technetium-99	1 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months.	Preserve sample with nitric or hydrochloric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	Tc-02-RC (HASL-300)
Tritium (Hydrogen-3)	1 L	Borosilicate glass small-mouth bottle	Maximum 6 months.	No preservation required.	906.0 (EPA)
Uranium-238 Uranium-234 Uranium-235	1 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months.	Preserve sample with nitric or hydrochloric acid to pH < 2.[7] Samples arriving unpreserved should be allowed to rest for 16 hours with preservative prior to sample preparation, time permitting.	D3972-02 (ASTM)

Soil & Sediment Samples

Packaging Requirements: Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reative tape or film. Wrap glass containers with bubble wrap. Determine the radiation-specific activity of the sample(s) and pack samples outside the contaminated area as described in Footnote (4).
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 (5).

Analyte	Sample Size[1]	Sample Container[2]	Holding Time[2]	Sample Preservative or Preparation[2]	Source/SAM Method[3]
Gross Alpha	0.1 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag. Borosilicate glass wide mouth jar may also be used.	Maximum 6 months.	Homogenize sample at collection. No preservation required.	AP1 (ORISE)
Gross Beta	0.1 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag. Borosilicate glass wide mouth jar may also be used.	Maximum 170 days based on half-life of Ir-192 of 173 days.	Homogenize sample at collection. No preservation required.	AP1 (ORISE)
Gamma Select Mixed Fission Products	Volume or mass equivalent to calibration standard, approx. 0.5 – 4 L	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag. Borosilicate glass wide mouth jar may also be used.	Maximum 65 hours based on half-life of Mo-99 of 65.94 hours.	Homogenize sample at collection. No preservation required.	Ga-01-R (HASL-300)
Total Activity Screening	1 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag. Borosilicate glass wide mouth jar may also be used.	Maximum 6 months.	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)

Soil & Sediment — Qualitative Determination

Packaging Requirements: Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reative tape or film. Wrap glass containers with bubble wrap. Determine the radiation-specific activity of the sample(s) and pack samples outside the contaminated area as described in Footnote (4).
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 (5).

Americium-241 (alpha) Plutonium-238 Plutonium-239 Strontium-90 Uranium-234 Uranium-235 Uranium-238	1 – 2 g	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 6 months.	Homogenize sample at collection. No preservation required. Analyze as is without preparation.	Actinides and Sr-89/90 in Soil Samples (DOE SRS)
Californium-252 Curium-244 Radium-226	1 kg	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag. Borosilicate glass wide mouth jar may also be used.	Maximum 6 months.	Homogenize sample at collection. No preservation required. Analyze as is without preparation.	D3084-05 (ASTM)
Americium-241 (gamma) Cesium-137 Cobalt-60 Europium-154 Ruthenium-103 Ruthenium-106	Volume or mass equivalent to calibration standard, approx. 0.5 – 4 L	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag. Borosilicate glass wide mouth jar may also be used.	Maximum 6 months.	Homogenize sample at collection. No preservation required. Analyze as is without preparation.	Ga-01-R (HASL-300)

Analyte	Sample Size[1]	Sample Container[2]	Holding Time[2]	Sample Preservative or Preparation[2]	Source/SAM Method[3]
Iodine-125	10 g	Borosilicate glass wide mouth jar	Maximum 59 days based on half-life of I-125 of 59.4 days.	Homogenize sample at collection. Analyze as is without preparation. I-125 will volatilize with heat; do not dry sample prior to analysis.	Procedure #9 (ORISE)
Iodine-131	Volume or mass equivalent to calibration standard, approx. 0.5 – 4 L	Borosilicate glass wide mouth jar	Maximum 8 days based on half-life of I-131 of 8.03 days.	Homogenize sample at collection. I-131 will volatilize with heat; do not dry sample prior to analysis.	Ga-01-R (HASL-300)
Iridium-192	Volume or mass equivalent to calibration standard, approx. 0.5 – 4 L	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag. Borosilicate glass wide mouth jar may also be used.	Maximum 170 days based on half-life of Ir-192 of 173 days.	Homogenize sample at collection. No preservation required. Analyze as is without preparation.	Ga-01-R (HASL-300)
Molybdenum-99	Volume or mass equivalent to calibration standard, approx. 0.5 – 4 L	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag. Borosilicate glass wide mouth jar may also be used.	Maximum 65 hours based on half-life of Mo-99 of 65.94 hours.	Homogenize sample at collection. No preservation required. Analyze as is without preparation.	Ga-01-R (HASL-300)
Phosphorus-32	50 – 100 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag. Borosilicate glass wide mouth jar may also be used.	Maximum 14 days based on half-life of P-32 of 14.26 days.	Homogenize sample at collection. No preservation required.	RESL P-2 (DOE)
Polonium-210	1 – 5 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag. Borosilicate glass wide mouth jar may also be used.	Maximum 6 months.	Homogenize sample at collection. No preservation required. Analyze as is without preparation.	Po-02-RC (HASL-300)
Selenium-75	Volume or mass equivalent to calibration standard, approx. 0.5 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 120 days based on half-life of Se-75 of 120 days.	Homogenize sample at collection. No preservation required. Analyze as is without preparation.	Ga-01-R (HASL-300)
Strontium-89	1 – 2 g	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 50 days based on half-life of 50.53 days.	Homogenize sample at collection. No preservation required. Sample is dried, sieved, and homogenized prior to analysis.	Actinides and Sr-89/90 in Soil Samples (DOE SRS)
Technetium-99	10 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag. Borosilicate glass wide mouth jar may also be used.	Maximum 6 months.	Homogenize sample at collection. No preservation required. Analyze as is without preparation.	AP5 (ORISE)
Tritium (Hydrogen-3)	50 g	Borosilicate glass wide mouth jar	Maximum 6 months.	No preservation required. Homogenize sample at collection. Tritium will volatilize with heat; do not dry sample.	AP2 (ORISE)

Analyte	Sample Size[1]	Sample Container[2]	Holding Time[2]	Sample Preservative or Preparation[2]	Source/SAM Method[3]
Soil & Sediment — Confirmatory					
Packaging Requirements: Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reative tape or film. Wrap glass containers with bubble wrap. Determine the radiation-specific activity of the sample(s) and pack samples outside the contaminated area as described in Footnote (4). **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 (5).					
Analyte	**Sample Size[1]**	**Sample Container[2]**	**Holding Time[2]**	**Sample Preservative or Preparation[2]**	**Source/SAM Method[3]**
Americium-241 (alpha) Californium-252 Curium-244	1 kg	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag. Borosilicate glass wide mouth jar may also be used.	Maximum 6 months.	Homogenize sample at collection. No preservation required.	Am-01-RC (HASL-300)
Americium-241 (gamma) Cesium-137 Cobalt-60 Europium-154 Ruthenium-103 Ruthenium-106	Volume or mass equivalent to calibration standard, approx. 0.5 – 4 L	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag. Borosilicate glass wide mouth jar may also be used.	Maximum 6 months.	Homogenize sample at collection. No preservation required. Analyze as is without preparation.	Ga-01-R (HASL-300)
Iodine-125	10 g	Borosilicate glass wide mouth jar	Maximum 59 days based on half-life of I-125 of 59.4 days.	Homogenize sample at collection. Analyze as is without preparation. I-125 will volatilize with heat; do not dry sample prior analysis.	Procedure #9 (ORISE)
Iodine-131	Volume or mass equivalent to calibration standard, approx. 0.5 – 4 L	Borosilicate glass wide mouth jar	Maximum 8 days based on half-life of I-131 of 8.03 days.	Homogenize sample at collection. No preservation required. I-131 will volatilize with heat; do not dry sample prior to analysis. Analyze as is without preparation.	Ga-01-R (HASL-300)
Iridium-192	Volume or mass equivalent to calibration standard, approx. 0.5 – 4 L	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag. Borosilicate glass wide mouth jar may also be used.	Maximum 170 days based on half-life of Ir-192 of 173 days.	Homogenize sample at collection. No preservation required. Analyze as is without preparation.	Ga-01-R (HASL-300)
Molybdenum-99	Volume or mass equivalent to calibration standard, approx. 0.5 – 4 L	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag. Borosilicate glass wide mouth jar may also be used.	Maximum 65 hours based on half-life of Mo-99 of 65.94 hours.	Homogenize sample at collection. No preservation required. Analyze as is without preparation.	Ga-01-R (HASL-300)
Phosphorus-32	50 – 100 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag. Borosilicate glass wide mouth jar may also be used.	Maximum 14 days based on half-life of P-32 of 14.26 days.	Homogenize sample at collection. No preservation required.	RESL P-2 (DOE)
Plutonium-238 Plutonium-239	1 kg	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag. Borosilicate glass wide mouth jar may also be used.	Maximum 6 months.	Homogenize sample at collection. No preservation required.	EMSL-33 (EPA)

Analyte	Sample Size[1]	Sample Container[2]	Holding Time[2]	Sample Preservative or Preparation[2]	Source/SAM Method[3]
Polonium-210	1 – 5 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag. Borosilicate glass wide mouth jar may also be used.	Maximum 6 months.	Homogenize sample at collection. No preservation required. Analyze as is without preparation.	Po-02-RC (HASL-300)
Radium-226	1 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag. Borosilicate glass wide mouth jar may also be used.	Maximum 6 months.	Homogenize sample at collection. No preservation required.	EMSL-19 (EPA)
Selenium-75	Volume or mass equivalent to calibration standard, approx. 0.5 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle	Maximum 120 days based on half-life of Se-75 of 120 days.	Homogenize sample at collection. No preservation required. Analyze as is without preparation.	Ga-01-R (HASL-300)
Strontium-89	2 – 10 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag. Borosilicate glass wide mouth jar may also be used.	Maximum 50 days based on half-life of Sr-89 of 50.53 days.	No preservation required.	Strontium in Food and Bioenvironmental Samples (EPA)
Strontium-90	Based on gross beta analysis, weigh out sufficient sample to obtain 10 – 100 times background activity	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag. Borosilicate glass wide mouth jar may also be used.	Maximum 6 months.	Homogenize sample at collection. No preservation required. Analyze as is without preparation.	Sr-03-RC (HASL-300)
Technetium-99	10 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag. Borosilicate glass wide mouth jar may also be used.	Maximum 6 months.	Homogenize sample at collection. No preservation required. Analyze as is without preparation.	AP5 (ORISE)
Tritium (Hydrogen-3)	50 g	Borosilicate glass wide mouth jar	Maximum 6 months.	Homogenize sample at collection. No preservation required. Tritium will volatilize with heat; do not dry sample before analysis.	AP2 (ORISE)
Uranium-238 Uranium-234 Uranium-235	1 L	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag. Borosilicate glass wide mouth jar may also be used.	Maximum 6 months.	Homogenize sample at collection. No preservation required.	EMSL-33 (EPA)

Surface Wipes

Packaging Requirements: Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reative tape or film. Wrap glass containers with bubble wrap. Determine the radiation-specific activity of the sample(s) and pack samples outside the contaminated area as described in Footnote (4).
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 (5).

Analyte	Sample Size[1]	Sample Container[2]	Holding Time[2]	Sample Preservative or Preparation[2]	Source/SAM Method[3]
Gross Alpha	1 wipe (limited to counting geometry size)	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag.	Maximum 6 months.	No preservation required. Analyze as is without preparation.	FRMAC, Vol. 2, pg. 33 (DOE)
Gross Beta	1 wipe (limited to counting geometry size)	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag.	Maximum 170 days based on half-life of Ir-192 of 173 days.	No preservation required. Analyze as is without preparation.	FRMAC, Vol. 2, pg. 33 (DOE)
Gamma Select Mixed Fission Products	1 wipe (limited to counting geometry size)	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag.	Maximum 65 hours based on half-life of Mo-99 of 65.94 hours	No preservation required. Analyze as is without preparation.	Ga-01-R (HASL-300)
Total Activity Screening	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag.	Maximum 6 months	No preservation required. If Tc-99 is to be assessed, a separate sample will be needed.	Preparation of Samples for Total Activity Screening (Y-12)

Surface Wipes — Qualitative Determination

Packaging Requirements: Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reative tape or film. Wrap glass containers with bubble wrap. Determine the radiation-specific activity of the sample(s) and pack samples outside the contaminated area as described in Footnote (4).
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 (5).

Americium-241 (alpha) Plutonium-238 Plutonium-239 Radium-226 Uranium-238 Uranium-234 Uranium-235	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag.	Maximum 6 months	No preservation required. Analyze as is without preparation.	Rapid Methods for Acid or Fusion Digestion (EPA)
Californium-252 Curium-244	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag.	Maximum 6 months	No preservation required. Analyze as is without preparation.	D3084-05 (ASTM)
Americium-241 (gamma) Cesium-137 Cobalt-60 Europium-154 Ruthenium-103 Ruthenium-106	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag.	Maximum 6 months	No preservation required. Analyze as is without preparation.	Ga-01-R (HASL-300)
Iodine-125	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag.	Maximum 59 days based on half-life of I-125 of 59.4 days	No preservation required. Analyze as is without preparation.	Procedure #9 (ORISE)

Analyte	Sample Size[1]	Sample Container[2]	Holding Time[2]	Sample Preservative or Preparation[2]	Source/SAM Method[3]
Iodine-131	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag.	Maximum 8 days based on half-life of I-131 of 8.03 days	No preservation required. Analyze as is without preparation.	Ga-01-R (HASL-300)
Iridium-192	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag.	Maximum 170 days based on half-life of Ir-192 of 173 days	No preservation required. Analyze as is without preparation.	Ga-01-R (HASL-300)
Molybdenum-99	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag.	Maximum 65 hours based on half-life of Mo-99 of 65.94 hours	No preservation required. Analyze as is without preparation.	Ga-01-R (HASL-300)
Phosphorus-32	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag.	Maximum 14 days based on half-life of P-32 of 14.26 days	No preservation required. Analyze as is without preparation.	RESL P-2 (DOE)
Polonium-210	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag.	Maximum 6 months	No preservation required. Analyze as is without preparation.	Method 111 (EPA)
Selenium-75	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag.	Maximum 120 days based on half-life of Se-75 of 120 days	No preservation required. Analyze as is without preparation.	Ga-01-R (HASL-300)
Strontium-89	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag.	Maximum 50 days based on half-life of Sr-89 of 50.53 days	No preservation required. Analyze as is without preparation.	Strontium in Food and Bioenvironmental Samples (EPA)
Strontium-90	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag.	Maximum 6 months	No preservation required. Analyze as is without preparation.	Rapid Methods for acid or Fusion Digestion (EPA)
Technetium-99	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag.	Maximum 6 months	No preservation required. Analyze as is without preparation.	AP5 (ORISE)
Tritium (Hydrogen-3)	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag.	Maximum 6 months	No preservation required. Tritium will volatilize with heat; do not dry sample before analysis. Analyze as is without preparation.	AP2 (ORISE)
Surface Wipes — Confirmatory					
Packaging Requirements: Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reative tape or film. Wrap glass containers with bubble wrap. Determine the radiation-specific activity of the sample(s) and pack samples outside the contaminated area as described in Footnote (4). **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 (5).					
Analyte	**Sample Size[1]**	**Sample Container[2]**	**Holding Time[2]**	**Sample Preservative or Preparation[2]**	**Source/SAM Method[3]**
Americium-241 (alpha) Californium-252 Curium-244	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag.	Maximum 6 months	No preservation required. Analyze as is without preparation.	Am-04-RC (HASL-300)
Americium-241 (gamma) Cesium-137 Cobalt-60 Europium-154 Ruthenium-103 Ruthenium-106	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag.	Maximum 6 months	No preservation required. Analyze as is without preparation.	Ga-01-R (HASL-300)

Analyte	Sample Size[1]	Sample Container[2]	Holding Time[2]	Sample Preservative or Preparation[2]	Source/SAM Method[3]
Iodine-125	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag.	Maximum 59 days based on half-life of I-125 of 59.4 days	No preservation required. Analyze as is without preparation.	Procedure #9 (ORISE)
Iodine-131	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag.	Maximum 8 days based on half-life of I-131 of 8.03 days	No preservation required. Analyze as is without preparation.	Ga-01-R (HASL-300)
Iridium-192	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag.	Maximum 170 days based on half-life of Ir-192 of 173 days	No preservation required. Analyze as is without preparation.	Ga-01-R (HASL-300)
Molybdenum-99	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag.	Maximum 65 hours based on half-life of Mo-99 of 65.94 hours	No preservation required. Analyze as is without preparation.	Ga-01-R (HASL-300)
Phosphorus-32	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag.	Maximum 14 days based on half-life of P-32 of 14.26 days	No preservation required. Analyze as is without preparation.	RESL P-2 (DOE)
Plutonium-238 Plutonium-239 Uranium-238 Uranium-234 Uranium-235	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag.	Maximum 6 months	No preservation required. Analyze as is without preparation.	EMSL-33 (EPA)
Polonium-210	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag.	Maximum 6 months	No preservation required. Analyze as is without preparation.	Method 111 (EPA)
Radium-226	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag.	Maximum 6 months	No preservation required. Analyze as is without preparation.	EMSL-19 (EPA)
Selenium-75	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag.	Maximum 120 days based on half-life of Se-75 of 120 days	No preservation required. Analyze as is without preparation.	Ga-01-R (HASL-300)
Strontium-89	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag.	Maximum 50 days based on half-life of Sr-89 of 50.53 days	No preservation required. Analyze as is without preparation.	Strontium in Food and Bioenvironmental Samples (EPA)
Strontium-90	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag.	Maximum 6 months	No preservation required. Analyze as is without preparation.	Sr-03-RC (HASL-300)
Technetium-99	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag.	Maximum 6 months	No preservation required. Analyze as is without preparation.	AP5 (ORISE)
Tritium (Hydrogen-3)	1 wipe	Glassine envelope, polyacrylic plastic Petri dish, or polyethylene plastic bag.	Maximum 6 months	No preservation required. Tritium will volatilize with heat; do not dry sample prior to analysis.	AP2 (ORISE)

Vegatation

Packaging Requirements: Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reative tape or film. Wrap glass containers with bubble wrap. Determine the radiation- specific activity of the sample(s) and pack samples outside the contaminated area as described in Footnote (4).
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 (5).

Analyte	Sample Size[(1)]	Sample Container[(2)]	Holding Time[(2)]	Sample Preservative or Preparation[(2)]	Source/SAM Method[(3)]
Gross Alpha Gross Beta	0.1 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag. Borosilicate glass wide mouth jar may also be used.	Maximum 6 months	No preservation required.	AP1 (ORISE)
Gamma Select Mixed Fission Products	Volume or mass equivalent to calibration standard, approx. 0.5 – 4 L	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag. Borosilicate glass wide mouth jar may also be used.	Maximum 65 hours based on half-life of Mo-99 of 65.94 hours	No preservation required.	Ga-01-R (HASL-300)
Total Activity Screening	1 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag. Borosilicate glass wide mouth jar may also be used.	Maximum 6 months	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 — Qualitative Determination

Packaging Requirements: Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reative tape or film. Wrap glass containers with bubble wrap. Determine the radiation-specific activity of the sample(s) and pack samples outside the contaminated area as described in Footnote (4).
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 (5).

Analyte	Sample Size[(1)]	Sample Container[(2)]	Holding Time[(2)]	Sample Preservative or Preparation[(2)]	Source/SAM Method[(3)]
Americium-241 (alpha) Plutonium-238 Plutonium-239 Strontium-90 Uranium-234 Uranium-235 Uranium-238	5 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag.	Maximum 6 months	No preservation required.	Actinides and Sr-89/90 in Vegetation (DOE SRS)
Californium-252 Curium-244	10 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag.	Maximum 6 months	No preservation required.	D3084-05 (ASTM)
Americium-241 (gamma) Cesium-137 Cobalt-60 Europium-154 Ruthenium-103 Ruthenium-106	Volume or mass equivalent to calibration standard, approx. 0.5 – 4 L	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag.	Maximum 6 months	No preservation required.	Ga-01-R (HASL-300)
Iodine-125	3 – 5 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag.	Maximum 59 days based on half-life of I-125 of 59.4 days	No preservation required. I-125 will volatilize with heat; do not dry sample prior to analysis.	Procedure #9 (ORISE)

Analyte	Sample Size[1]	Sample Container[2]	Holding Time[2]	Sample Preservative or Preparation[2]	Source/SAM Method[3]
Iodine-131	Volume or mass equivalent to calibration standard, approx. 0.5 – 4 L	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag.	Maximum 8 days based on half-life of I-131 of 8.03 days	No preservation required. I-131 will volatilize with heat; do not dry sample prior to analysis.	Ga-01-R (HASL-300)
Iridium-192	Volume or mass equivalent to calibration standard, approx. 0.5 – 4 L	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag.	Maximum 170 days based on half-life of Ir-192 of 173 days	No preservation required.	Ga-01-R (HASL-300)
Molybdenum-99	Volume or mass equivalent to calibration standard, approx. 0.5 – 4 L	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag.	Maximum 65 hours based on half-life of Mo-99 of 65.94 hours	No preservation required.	Ga-01-R (HASL-300)
Phosphorus-32	100 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag.	Maximum 14 days based on half-life of P-32 of 14.26 days	No preservation required.	RESL P-2 (DOE)
Polonium-210	100 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag.	Maximum 138 days based on half-life of Po-210 of 138 days	No preservation required.	Po-02-RC (HASL-300)
Radium-226	2.3 kg to yield 10 g ash sample	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag.	Maximum 6 months	No preservation required.	Ra-03-RC (HASL-300)
Selenium-75	Volume or mass equivalent to calibration standard, approx. 0.5 – 4 L	Plastic (polypropylene or polyethylene) or borosilicate glass small-mouth bottle.	Maximum 120 days based on half-life of Se-75 of 120 days	No preservation required.	Ga-01-R (HASL-300)
Strontium-89	5 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag.	Maximum 50 days based on half-life of Sr-89 of 50.53 days	No preservation required.	Actinides and Sr-89/90 in Vegetation (DOE SRS)
Technetium-99	10 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag.	Maximum 6 months	No preservation required.	AP5 (ORISE)
Tritium (Hydrogen-3)	50 g	Borosilicate glass wide mouth jar.	Maximum 6 months	No preservation required. Tritium will volatilize with heat; do not dry sample prior to analysis.	AP2 (ORISE)

Vegetation — Confirmatory

Packaging Requirements: Wipe outside of each container clean using a damp, then dry cloth. Seal the container with non-reative tape or film. Wrap glass containers with bubble wrap. Determine the radiation-specific activity of the sample(s) and pack samples outside the contaminated area as described in Footnote (4).
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 (5).

Analyte	Sample Size[1]	Sample Container[2]	Holding Time[2]	Sample Preservative or Preparation[2]	Source/SAM Method[3]
Americium-241 (alpha) Californium-252 Curium-244 Plutonium-238 Plutonium-239	100 – 300 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag.	Maximum 6 months	No preservation required.	Am-06-RC (HASL-300)

Analyte	Sample Size[1]	Sample Container[2]	Holding Time[2]	Sample Preservative or Preparation[2]	Source/SAM Method[3]
Americium-241 (gamma) Cesium-137 Cobalt-60 Europium-154 Ruthenium-103 Ruthenium-106	Volume or mass equivalent to calibration standard, approx. 0.5 – 4 L	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag.	Maximum 6 months	No preservation required.	Ga-01-R (HASL-300)
Iodine-125	3 – 5 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag.	Maximum 59 days based on half-life of I-125 of 59.4 days	No preservation required. I-125 will volatilize with heat; do not dry sample prior to analysis.	Procedure #9 (ORISE)
Iodine-131	Volume or mass equivalent to calibration standard, approx. 0.5 – 4 L	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag.	Maximum 8 days based on half-life of I-131 of 8.03 days	No preservation required. I-131 will volatilize with heat; do not dry sample prior to analysis.	Ga-01-R (HASL-300)
Iridium-192	Volume or mass equivalent to calibration standard, approx. 0.5 – 4 L	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag.	Maximum 170 days based on half-life of Ir-192 of 173 days	No preservation required.	Ga-01-R (HASL-300)
Molybdenum-99	Volume or mass equivalent to calibration standard, approx. 0.5 – 4 L	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag.	Maximum 65 hours based on half-life of Mo-99 of 65.94 hours	No preservation required.	Ga-01-R (HASL-300)
Phosphorus-32	100 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag.	Maximum 14 days based on half-life of P-32 of 14.26 days	No preservation required.	RESL P-2 (DOE)
Polonium-210	100 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag.	Maximum 138 days based on half-life of Po-210 of 138 days	No preservation required.	Po-02-RC (HASL-300)
Radium-226	2.3 kg to yield 10 g ash sample	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag.	Maximum 6 months	No preservation required.	Ra-03-RC (HASL-300)
Selenium-75	Volume or mass equivalent to calibration standard, approx. 0.5 – 4 L	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag.	Maximum 120 days based on half-life of Se-75 of 120 days	No preservation required.	Ga-01-R (HASL-300)
Strontium-89	2 – 5 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag.	Maximum 50 days based on half-life of Sr-89 of 50.53 days	No preservation required.	Strontium in Food and Bioenvironmental Samples (EPA)
Strontium-90	100 – 300 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag.	Maximum 6 months	No preservation required.	Sr-03-RC (HASL-300)
Technetium-99	5 – 20 g	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag.	Maximum 6 months	No preservation required.	Tc-01-RC (HASL-300)
Tritium (Hydrogen-3)	50 g	Borosilicate glass wide mouth jar.	Maximum 6 months	No preservation required. Tritium will volatilize with heat; do not dry sample prior to analysis.	AP2 (ORISE)
Uranium-238 Uranium-234 Uranium-235	2.3 kg to yield 10 g ash sample	Plastic (polypropylene or polyethylene) large-mouth bottle, jar, or plastic bag.	Maximum 6 months	No preservation required.	U-02-RC (HASL-300)

Footnotes:

(1) The sample sizes listed are based on the amount needed for analysis of a single sample. If requested by the laboratory, additional samples(s) must be collected for laboratory quality control analyses (e.g., duplicates, matrix spikes). It is also recommended that additional sample(s) be collected in case of the need for reanalysis due to sample spillage or unforseen analytical difficulties.

(2) Sample container, holding times, preservation, and sample preparation information has been derived from requirements stated in the analytical methods or documents cited under "SAM/Source Method" or in Section 7.0 of this document.

(3) SAM 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), 2012 (www.epa.gov/sam/). SAM 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.

(4) 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 (49CFR 173.24 and 173.453). Check the radiation-specific activity from the packaged samples (49 CFR 173.403).

(5) 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 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. A specific label is required if the surface radiation limit and the limit at 1 meter satisfy the requirements of 49 CFR 172.403.

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

(7) If dissolved components are to be determined, samples requiring preservation must be filtered prior to preservation.

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