Defense Centers for Public Health – Aberdeen
(formerly U.S. Army Public Health Center)

Technical Guide No. 211 – Radiobioassay Collection Labeling and Shipping Requirements

September 2023

The Laboratory Sciences of the Defense Centers for Public Health – Aberdeen is the proponent of this guide. Users are invited to send comments and suggested improvements directly to:

Defense Centers for Public Health – Aberdeen
ATTN: DCPH-ALAB-LOD, Building E-2850,
8300 Ricketts Point Road, Aberdeen Proving Ground, MD 21010-5403
or by email at
Dha.apg.Pub-Health-A.list.industrial-hygiene-lab-analysis-inq@health.mil

Disclaimer: Suggested equipment and supplies is not an endorsement by the Federal government, the Department of Defense, or DCPH-A.

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* This technical guide supersedes USAPHC TG No. 211, dated 2012.

CHAPTER 1
INTRODUCTION

1-1. PURPOSE. This technical guide (TG) provides specimen collection, labeling, and shipping instructions that will assist the customer and Defense Centers for Public Health–Aberdeen (DCPH-A), Laboratory Sciences (LAB) Directorate personnel in the bioassay sampling and analysis process.

This TG has been designed for routine bioassay monitoring programs and for those requiring emergency radiochemistry laboratory support (source breaks involving potential personnel exposure). This TG may also be of use to those involved with other bioassay requirements.

For urine specimens that are being collected/submitted to assess potential exposure of deployed Soldiers to depleted uranium (DU), see Appendix G of DA PAM 40-11 https://armypubs.army.mil/epubs/DR_pubs/DR_a/pdf/web/ARN22182_P40_11_FINAL.pdf.

1-2. AUTHORITY. Army Regulation (AR) 40-5 states that under the command jurisdiction of the U.S. Army Medical Command and the Director of DCPH-A, through its laboratory, will provide worldwide support, upon request, to Department of the Army (DA) and Defense Logistics Agency (DLA) installations.

1-3. REFERENCES. Appendix A provides a list of references.

1-4. ABBREVIATIONS. The glossary explains the abbreviations used in this TG.

1-5. DEFINITIONS OF SPECIAL TERMS. See section 3 of the Glossary for special term definitions.

1-6. GENERAL.

a. Bioassay is only one part of a comprehensive radiation protection program. A radiation protection program may include air monitoring, area monitoring, instrument readings, and respiratory protection. It is important to understand your radiation protection program and coordinate with your local radiation protection officer (RPO) or designated official to ensure a sound program is in place and is being followed.

b. The National Council on Radiation Protection and Measurements (NCRP) Report No. 87 contains an excellent discussion on bioassay.

c. The sampling process begins with planning, followed by specimen collection, labeling, and shipping.

(1) Planning should consider how the laboratory data will be used to make required decision(s). For routine situations, good planning will aid in determining the types and number of specimens to be collected, required analyses, required detection limits, and the need for background specimens.

(2) Specimen collection is extremely important in the analytical process. **Communication between the customer and DCPH-A LAB prior to specimen collection is required.**

d. Currently, DCPH-A LAB only performs *in vitro* analyses. However, DCPH-A LAB, together with the Health Physics Program of DCPH-A, may be able to provide assistance in obtaining *in vivo* analyses.

e. Table 1-1 provides the recommended specimen type and minimum volume required for the analyses that DCPH-A LAB routinely performs.

Table 1-1. Analyses Routinely Performed by DCPH-A LAB

Analysis	Recommended Specimen Type	Required Volume
Tritium*	Single void	50-100 mL
Uranium (ICP-MS)*	24-hour	1000-1500 mL
Isotopic Gamma Analysis*	24-hour	1000-1500 mL

Note: *All the analyses may be done on the same 24-hour urine specimen, if sufficient volume (minimum of 1.5 liters) is obtained.

1-7. TECHNICAL ASSISTANCE

a. For ***non-emergency*** radiochemistry laboratory support, request DCPH-A LAB services at least 30 days prior to the planned specimen collection date. This will enable the laboratory to schedule resources and work efficiently to ensure customer requirements can be fulfilled in a timely manner. To request laboratory services, submit an DCPH-A Laboratory Information Documentation System (LIDS) 330 (Request for Laboratory Services) in the following way:

- Submit a LIDS 330 analytical request to the DCPH-A LAB mailbox “Sampnews” online, using the link immediately below. Registration to use the online LIDS application (DLS Forms) is required prior to submitting a request. To register, use the same link. After completing the request document, click the ‘submit’ button at the bottom of the LIDS 330 document.
  https://phc.amedd.army.mil/topics/labsciences/lsm/Pages/LIDS.aspx

An example of the LIDS 330 document is located in Appendix B.

In addition to the LIDS 330, provide a memorandum of request for laboratory support and the U.S. Army Dosimetry Center (ADC) bioassay information summary sheet. See paragraph 3-3 for information to include in the memorandum. Figure B-2 shows and example of DA Form 7689.

b. For ***emergency*** radiochemistry laboratory support, immediately notify the DCPH-A LAB Consultants by telephone at 410-436-2208, or DSN 584-2208. In addition, follow the procedures specified in paragraph 1-7a. above.

c. Contact the Laboratory Operations Division of DCPH-A LAB at 410-436-2208 or by email address at Dha.apg.Pub-Health-A.list.industrial-hygiene-lab-analysis-inq@health.mil with any questions, to include assistance with registration to the online laboratory request application, completing the LIDS 330 laboratory request, and to request the status of submitted samples.

CHAPTER 2
COLLECTION INSTRUCTIONS

SECTION I. SINGLE VOID URINE SPECIMEN

2-1. SCOPE. A single void urine specimen(s) is normally analyzed only for tritium, since the volume of urine collected is insufficient for other urine bioassays.

2-2. SUPPLIES. A 125-milliliter size single void urine specimen container is used for collecting the specimens. EP Scientific Products, cat. # 156-125WM/N is a suggested source for this container, phone 800-331-7425 (containers can be included upon request).

2-3. PROCEDURE.

a. Follow local health clinic/facility procedures for collecting a urine specimen(s). Ensure to—

(1) Wash hands before collecting a specimen(s).

(2) Collect a single void urine specimen(s) in a leak-proof, polyethylene bottle(s) with approximately 50 to 100 milliliter capacity. Use as many bottles as necessary and label as: bottle one of two, two of two, and so forth.

b. In the event of an accidental exposure to tritium, it is critical the urine specimen(s) collected for analysis is representative of the tritium concentration in the body water. A specimen(s) collected too soon after exposure will not be representative because the tritium will not have equilibrated throughout the body. The pre-exposure bladder contents will dilute the tritium concentration of the urine, which is deposited in the bladder following the exposure. Therefore, for accidents, such as source breaks, follow these three additional instructions:

(1) Discard the initial void of the bladder following the exposure. This should occur within the 2 hours following the exposure. This will empty the bladder of its pre-exposure contents. If voiding cannot be accomplished in this period, consult with the proper medical personnel for resolution and note the problem in the laboratory request (LIDS 330) and the memorandum for laboratory support for priority bioassay analysis.

(2) Discard any additional voids that occur prior to 4 hours post-exposure.

(3) Allow a minimum of 4 hours to elapse following the exposure. During this time, the tritium equilibrates in the body water. Then, collect a void following this post-exposure-waiting period. The post-exposure-waiting period may be longer than 4 hours but should not be less than 4 hours.

NOTE: The tritium equilibration times listed in different references varies from 2 to 4 hours; the recommended waiting period is 4 hours since it is the more conservative estimate. For details, see references (NCRP 1976; NRC 1992) **in Appendix A.**

c. A minimum of 50 milliliters is required for analysis (recommended 125 mL bottles will be about half full).

d. Close container **tightly** and **rinse** under running water. Dry the container before shipping.

e. Do **NOT** add chemicals or preservatives to the specimen(s).

f. Follow labeling instructions in chapter 3, paragraph 3-2.

g. Follow shipping instructions in chapter 4.

h. If a specimen leaks from the bottle or is compromised for any other reason during transportation, then the DCPH-A LAB will—

(1) Reject and dispose of the specimen(s), without analysis.

(2) Notify the requestor of the incident and ask them to resubmit the specimen(s).

SECTION II. 24-HOUR URINE SPECIMEN

2-4. SCOPE. A 24-hour urine specimen(s) can be analyzed for tritium, uranium, and gamma-emitting radionuclides.

2-5. SUPPLIES. A 1.0-liter size 24-hour void urine specimen container is used for collecting the specimens. EP Scientific Products, cat# 150-01WM/N is a suggested source for this container, phone 800-228-4931 (containers can be included upon request).

2-6. PROCEDURE.

a. Follow local health clinic/facility procedures for collecting a urine specimen(s). Ensure to—

(1) Wash hands before collecting each portion of the urine specimen(s).

(2) Collect a 24-hour urine specimen(s) in a wide-mouth, leak-proof, polyethylene bottle with a 1.0-liter capacity. Two bottles may be necessary, since a 24-hour void for reference man is about 1.5 liters. See paragraph 2-5 for a recommended collection bottle/container.

NOTE: Do NOT use clinical 24-hour collection containers or collapsible urine collection containers.

b. Begin collecting at a convenient time. Discard the initial void, noting the time; this is the start of the 24-hour collection period. Completely void all urine during the 24-hour period into the containers described above.

c. The final portion of the specimen(s) will be the last voided just prior to end of 24-hour collection period (for example, if the start of the 24-hour collection period (as defined above) was 0600 on 1 Jan 2023, you would collect urine up to but not beyond 0600 on 2 Jan 2023).

d. An entire 24-hour specimen is required because results are based on a 24-hour standard. The minimum volume to be provided for analysis of gamma-emitting radionuclides is 1.0 liter. Call the laboratory for further instructions if 1 liter cannot be collected.

e. In the event of an accidental exposure, except for tritium, collect a 24-hour urine specimen(s) as soon as practical after the exposure. Discard the initial void of the bladder following the exposure. For accidents, such as source breaks, follow these two additional instructions:

(1) Ensure there is no surface/area contamination that contaminates the specimen(s).

(2) Consult with the RPO to determine if a second 24-hour urine specimen should be collected immediately after the first. The second specimen may be collected because radionuclides have different transport times through the body. If a second sample is to be collected, submit both samples to the laboratory.

f. Close container **tightly** after entire specimen(s) has been collected and **rinse** the bottle(s) under running water. Dry the container(s) before shipping.

g. Do **NOT** add chemicals or preservatives to the specimen(s).

h. Follow labeling instructions in chapter 3, paragraph 3-2.

i. Follow shipping instructions in chapter 4.

j. If a specimen leaks from the bottle, or is compromised for any other reason during transportation, DCPH-A LAB will—

(1) Reject and dispose of the specimen(s), without analysis.

(2) Notify the requestor of the incident and ask them to resubmit the specimen(s).

SECTION III. FECAL SPECIMEN

2-7. SCOPE. A fecal specimen can be analyzed for gamma and/or alpha-emitting radionuclides (e.g., americium and thorium). Note that the quantity of radioactive material in feces is more difficult to ascertain and quantify relative to urine. Also, interpretation of results may be more difficult because the daily rate of fecal mass excreted is more variable.

2-8. SUPPLIES. The following fecal specimen containers are suggested to be used for shipping after the specimen is collected (use both):

a. Heavy resealable polyethylene bags, 8” x 8” size. Suggested source: United States Plastic Corp®, Zippit®, 48313, 4 mil.

b. Snap-lock plastic containers, suggest natural polypropylene, 64 oz. Suggested source: Freund (Berlin Packaging) CAT 29166, phone 800-363-9822. Alternate Source: HAZMATPAC 1-8000923-9123.

NOTE: The DCPH-A LAB does supply fecal specimen collection or shipping containers since they are routine medical items.

2-9. PROCEDURE.

a. Follow local health clinic/facility procedures for collecting fecal specimen(s). Ensure to—

(1) Wash hands before collecting the fecal specimen(s).

(2) Collect the fecal specimen(s) in a polyethylene bag placed in the snap-lock, multipurpose container. Take care to prevent contamination of the specimen(s) with transportable contaminants on clothes or surroundings. See paragraph 2-8 for recommended collection containers.

b. In the event of an accidental exposure, it is imperative that all feces be collected. For accidents, such as source breaks, consult with the proper medical personnel and the RPO to determine if additional sampling is required.

c. Close container **tightly.**

d. Refrigerate or freeze the specimen for preservation. Do **NOT** add chemicals.

e. Follow labeling instructions in chapter 3, paragraph 3-2.

f. Follow shipping instructions in chapter 4.

g. If a specimen is compromised during transportation for any reason, DCPH-A LAB will—

(1) Reject and dispose of the specimen(s), without analysis.

(2) Notify the requestor of the incident and ask them to resubmit the specimen(s).

CHAPTER 3
SUBMISSION INSTRUCTIONS

3-1. SPECIMEN SUBMISSION. The following instructions are critical to ensuring data quality. Problems encountered with specimen submission will be documented in the DCPH-A laboratory report.

a. When submitting specimen(s) to DCPH-A LAB for analytical services, uniquely identify each specimen by following the labeling instructions in paragraph 3-3.

b. According to paragraph 3-3, a memorandum of request must accompany each specimen submitted for analysis. In addition to the memorandum of request, a LIDS 330 laboratory request (see paragraph 1-7) must be submitted prior to shipping the specimen(s) to the laboratory.

3-2. LABELING INSTRUCTIONS. When entering information on a tag or label, either type or print legibly using waterproof ink.

a. Tag or label each specimen container with the following information:

(1) Individual's full name (for example, last name, first name, and middle name (or middle initial).

(2) Department of Defense Identification Number (DoD ID #), which can be found on the individual's Common Access Card. If a DoD ID# is not available, contact the laboratory for further instructions.

(3) Date and start and end times of specimen collection or 24-hour period (for example, 10 Jun 2023, 1430 to 11 Jun 2023, 1430).

b. For urine specimen(s), mark the level of liquid in the container by placing a line on the outside of the container with a waterproof pen.

3-3. INSTRUCTIONS FOR PREPARING A MEMORANDUM OF REQUEST.

a. See paragraph 1-7 for instructions on how to submit the required LIDS 330 analytical request. In addition, include a memorandum of request for laboratory support with the specimens. The memorandum of request includes information that will not be provided on the LIDS 330. The memorandum of request must contain the following information:

(1) The requested analyses and a list of the patient's name, DoD ID #, and date of birth for all specimens submitted. **DO NOT INCLUDE AN INDIVIDUAL'S SSN ON THE REQUEST**. Contact the lab if a DoD ID # is not available.

(2) Information required to process results include dosimetry account code, NRC license number or DA radiation authorization/permit number, the radioactive commodity, and point of contact information for the RPO.

(3) Justification or explanation for either routine or priority support.

(4) Information on the medical treatment facility including POC, POC's phone number(s), mailing address, and email address. The final report will be addressed and secured emailed to the specified POC. It is critical to ensure this email address is correct.

(5) The ADC bioassay information summary sheet DA Form 7689, as an enclosure to the memorandum of request (see Appendix B). See weblink for form:

https://armypubs.army.mil/pub/eforms/DR_a/pdf/DA%20FORM%207689.pdf

b. Figure 3-1 provides an example of the memorandum for analytical support.

YOUR OFFICE SYMBOL DATE

MEMORANDUM FOR Director, DCPH-A Laboratory Sciences
ATTN: Sample Management Laboratory
8300 Ricketts Point Road, Building E2850
Aberdeen Proving Ground, MD 21010-5403

SUBJECT: Request for Routine / Priority Analytical Support. (Select one)

1. Request that urine specimens be analyzed for (Please list isotope(s) of concern for analysis) for the following patients, listed alphabetically.

NAME	DOD ID#	DOB (MM/DD/YY)

2. The following information is provided (required to process results) in support of this request:

   a. Dosimetry Account Code (Call RPO or Dosimetry Custodian for Code.)
   b. NRC License Number or DA Radiation Authorization/Permit Number
   c. Radioactive Commodity (Name and NSN, if known)
   d. RPO Name, Telephone Number
   e. RPO Email Address, Fax Number

3. Justification/Explanation for Routine/Priority Support – In the event of a source break, accident, or incident, list the date and time of the exposure (for example, source break, 6 May 11: 0800 AM). If the date and time of the break are estimated, state this also. For routine collection of specimen(s); state the frequency for example, routine biweekly (6 through 17 April 11); routine monthly (April 11); or routine quarterly (Apr through Jun 11).

4. Point of contact for additional information is _____
   DSN _____ or commercial _____.
   The e-mail address is _____. The complete return mailing address for your organization is _____
   _____

FOR THE COMMANDER:

SIGNATURE BLOCK
Of Requestor

Note: Type on Official Center/Installation Letterhead.

Figure 3-1. Example Memorandum for Analytical Support

CHAPTER 4
SHIPPING INSTRUCTIONS

4-1. GOVERNING REGULATIONS.

a. After a specimen is collected, it is usually packed with all other specimens collected and sent to the DCPH-A LAB for analyses. Various regulations govern packing and transportation of different types of materials.

b. Bioassay specimens are defined as any human or animal material including, but not limited to, excreta, secreta, blood and its components, tissue, and tissue fluids being shipped for purposes of diagnosis. Specimens shipped to undergo a screening test for the purpose of initial diagnosis may be considered as general diagnostic specimens, provided such material is not known or suspected to contain infectious substances, such as the Hepatitis B Virus (HBV) or the Human Immunodeficiency Virus (HIV). If a bioassay specimen contains or is suspected to contain an infectious substance, it must comply with the infectious substance transport requirements. Please contact the laboratory prior to shipping specimens with known or suspected infectious substaances. Specimens shipped to undergo confirmatory testing, which are known or suspected to contain an infectious agent to include viruses, are regulated as infectious substances; therefore, they must comply with infectious substance transport requirements. Shippers are responsible for understanding and complying with the regulations governing bioassay specimens.

4-2. DEFINITIONS OF SPECIAL TERMS. See Appendix Glossary Section II-Terms for definitions of special terms.

4-3. SUPPLIES.

a. Use the following shipping and packing materials (containers can be included upon request).

(1) Secondary containers.

(a) One-gallon size paint cans. Suggested source: Freund Container and Supply, item no. 1800T23 800-363-9822. (This secondary container is recommended for single void urine specimen(s).)

(b) Five-gallon size steel pail, open head, unlined with lever lock ring. Suggested source: Freund Container and Supply, item no. 1252-4462, 800-363-9822. (This secondary container is recommended for 24-hour urine specimen(s).)

(2) Shipping box, 12”x12”x12”. Suggested source: Achieve of Central Virginia (formerly Lynchburg Sheltered Industried), 434-847-4488, https://www.achievecentralva.com/.

(3) Non-particulate absorbent material (the packing material should have the capability to hold approximately eight times its own weight of water).

(4) Shock absorbent material, cushioning, cellulosic (the packing material should have the capability to hold approximately eight times its own weight of water).

(5) Plastic Ziploc®-type bags, polyethylene, interlocking seal.

b. Limited supplies of shipping and packing materials may be obtained from the DCPH-A LAB (contact the DCPH-A Consultants at 410-436-2208 or by email at Dha.apg.Pub-Health-A.list.industrial-hygiene-lab-analysis-inq@health.mil).

4-4. PROCEDURE.

a. Pack urine specimen(s) according to the following instructions (see Figure 4-1 for a cutaway shipping diagram):

(1) Ensure primary specimen(s) container caps are **tight.**

(2) Use a pen with waterproof ink to mark the level of liquid in the container.

(3) Place the primary specimen(s) containers upright in the leak-proof secondary container.

NOTE: A fiberboard or cardboard box is NOT considered a leak-proof secondary container.

(4) Include, in the secondary container, non-particulate absorbent material sufficient to absorb the total specimen volume if leakage occurs from the primary container.

(5) Place the secondary container in a shipping container, usually a cardboard box, with shock absorbent material at least equal to the amount used in the secondary container.

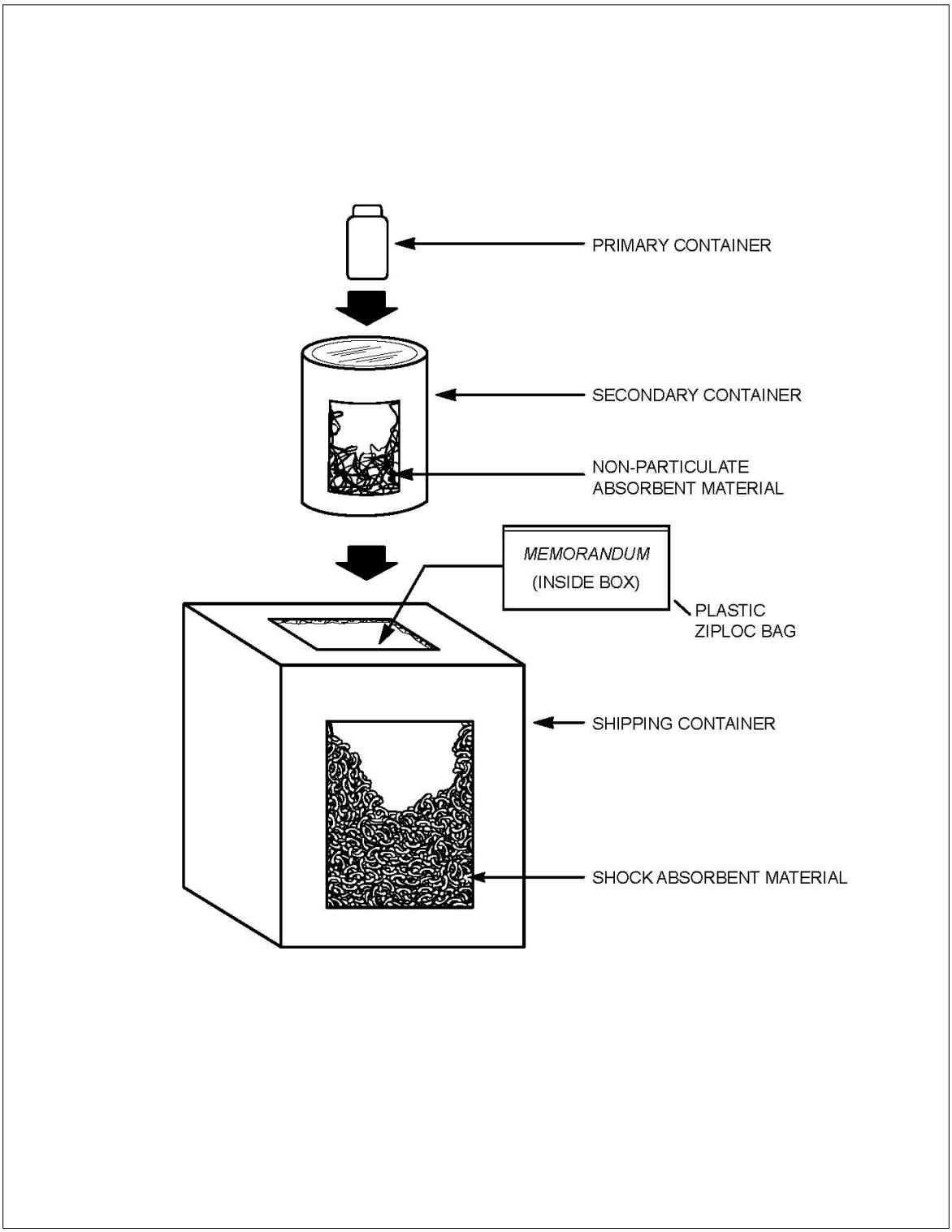

Figure 4-1. Cutaway Shipping Diagram for Urine Specimens

b. Pack fecal specimen(s) according to the following instructions:

(1) Ensure the polyethylene bag(s) **are sealed** and the multipurpose container lid(s) are **tight.**

(2) Place the specimen containers upright in a pathological shipping box. Add dry ice to the box.

(3) Ensure the dry ice does not make direct contact with the specimen container, typically by using cardboard.

c. For all biological samples—

(1) Place the accompanying paperwork (memorandum of request for analytical support and the ADC bioassay information summary sheet) in a plastic ziplock-type bag (NOT a clinical specimen bag or Biohazard labeled bag) in the shipping container. This is necessary to prevent the paperwork from becoming contaminated if a specimen(s) leaks. **DO NOT** place the accompanying paperwork on the specimen(s) container or in direct contact with the specimen(s).

(2) Label the shipping container with “THIS END UP” to avoid spillage of specimen(s).

(3) Address the shipping container(s) as follows:

Director, DCPH-A Laboratory Sciences
ATTN: Sample Management Laboratory
8300 Ricketts Point Road, Building E2850
Aberdeen Proving Ground, MD 21010-5403
POC: 410-436-2208

d. If the specimen(s) is known or suspected to contain an etiologic agent, either verbal or email permission **must** be obtained from the DCPH-A LAB Consultants (410-436-2208) **before** shipping. Ensure the hazardous nature of the specimen(s) is described on the laboratory request (LIDS 330) and in the memorandum of request for analytical support. The specimen(s) must be packed and shipped according to the instructions in Title 4, Code of Federal Regulations (CFR), part 72 and Title 39 CFR, part 111.

e. If the isotopes and amounts of radioactivity are known, then it is necessary to comply with the shipping requirements of Title 49 CFR, part 173.421.

f. Ship the specimen(s) to the laboratory in a manner which is consistent with the requested priority of the specimen(s).

(1) Emergency or priority specimen(s).

(a) In the event of an emergency, notify the laboratory immediately, and prior to sending the priority specimen(s).

(b) All priority specimen(s) must be shipped directly to DCPH-A LAB, Building E2850, by the most expeditious means of delivery (for example, FedEx®, UPS®, DHL Worldwide Express®, and so forth). Packages must be properly labeled. See paragraph c(3) above for shipping address.

(c) It is the customer's responsibility to send specimen(s) by next day delivery in the case of an emergency. The DCPH-A LAB's responsibility for the specimen(s) begins upon receipt in the laboratory.

(2) Routine specimen(s).

(a) Ship specimen(s) via commercial carrier. Require a signature upon receipt at DCPH-A LAB. It is highly recommended all routine specimens be shipped with priority shipping.

g. If additional information or clarification is required, contact the DCPH-A LAB Consultants at 410-436-2208 or by email at Dha.apg.Pub-Health-A.list.industrial-hygiene-lab-analysis-inq@health.mil.

APPENDIX A

REFERENCES

American National Standard Institute. 2017. ANSI Standard N13.30, *Performance Criteria for Radiobioassay*.

Code of Federal Regulations, "Excepted Packages for Limited Quantities of Class 7 (Radioactive) Materials," Title 49, Part 173.421.

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Department of the Army. 1995. Pamphlet 40-18/DLAI 1000.30, *Personnel Dosimetry Guidance and Dose Recording Procedures for Personnel Occupationally Exposed to Ionizing Radiation.*

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Nuclear Regulatory Commission (NRC). 1988. NRC Regulatory Guide 8.32, *Criteria for Establishing a Tritium Bioassay Program*.

Nuclear Regulatory Commission (NRC).1992. NUREG-0938, *Information for Establishing Bioassay Measurements and Evaluations of Tritium Exposure*.

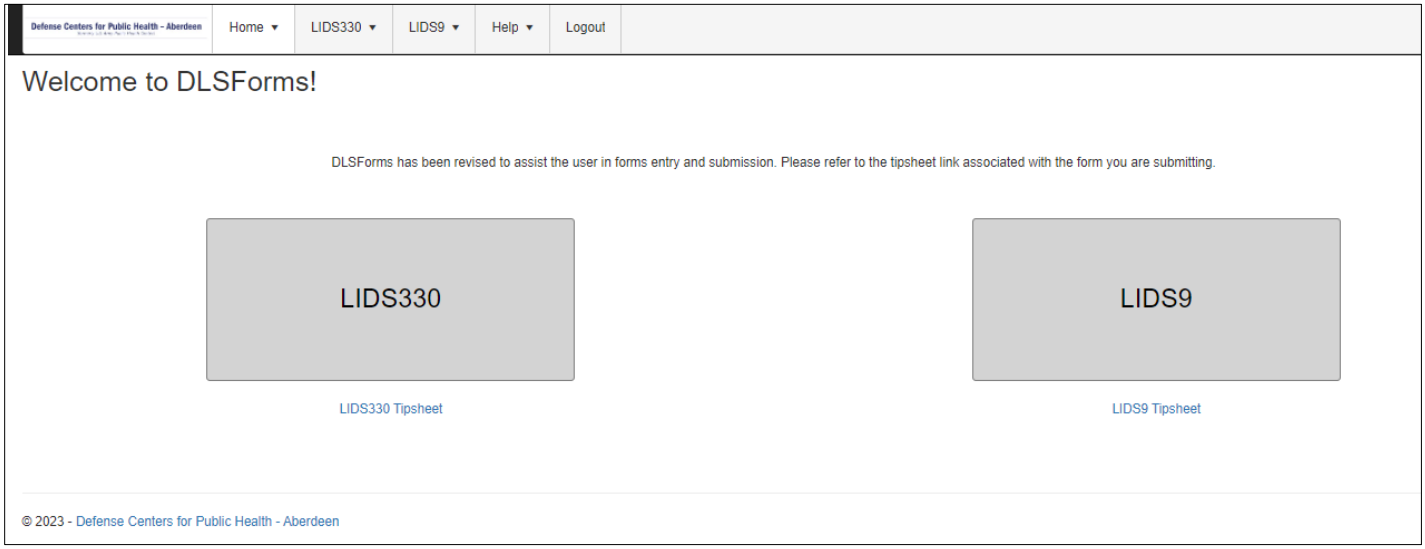
U.S. Army Public Health Command (USAPHC). 2012. Technical Guide 214*, APHC-LS Customer Service Manual.*

APPENDIX B

Forms/DCPH-A LIDS

To access these forms, use the links below:

- LIDS 330, Request for Laboratory Services. See the LIDS330 Tipsheet instructions for completing a request for laboratory services when you log into the following website with your CAC (see figure below):
  https://phc.amedd.army.mil/topics/labsciences/lsm/Pages/LIDS.aspx



- DA Form 7689, Bioassay Information Sheet.
  https://armypubs.army.mil/default.aspx

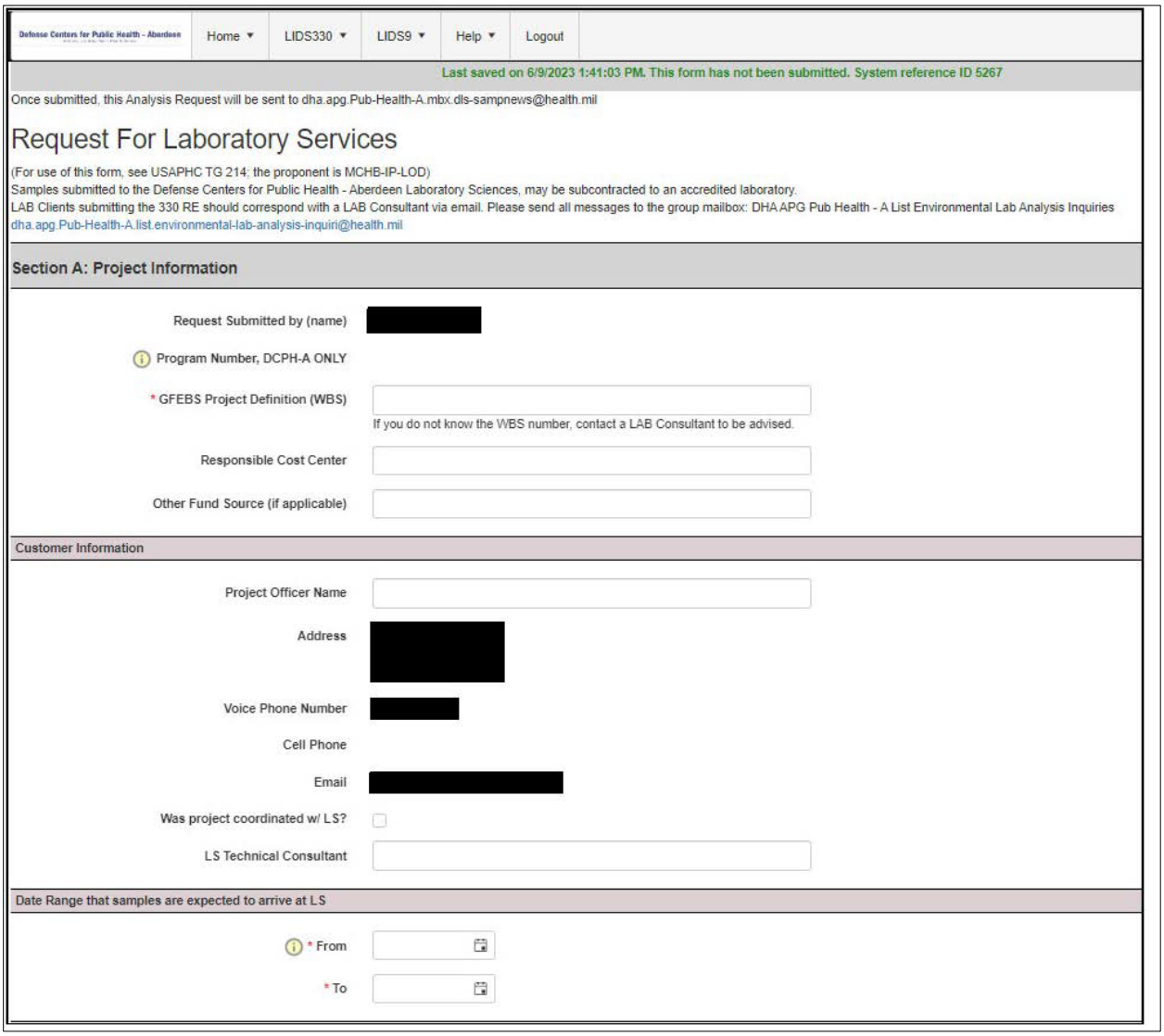


Figure B-1. LIDS 330, Request for Laboratory Services

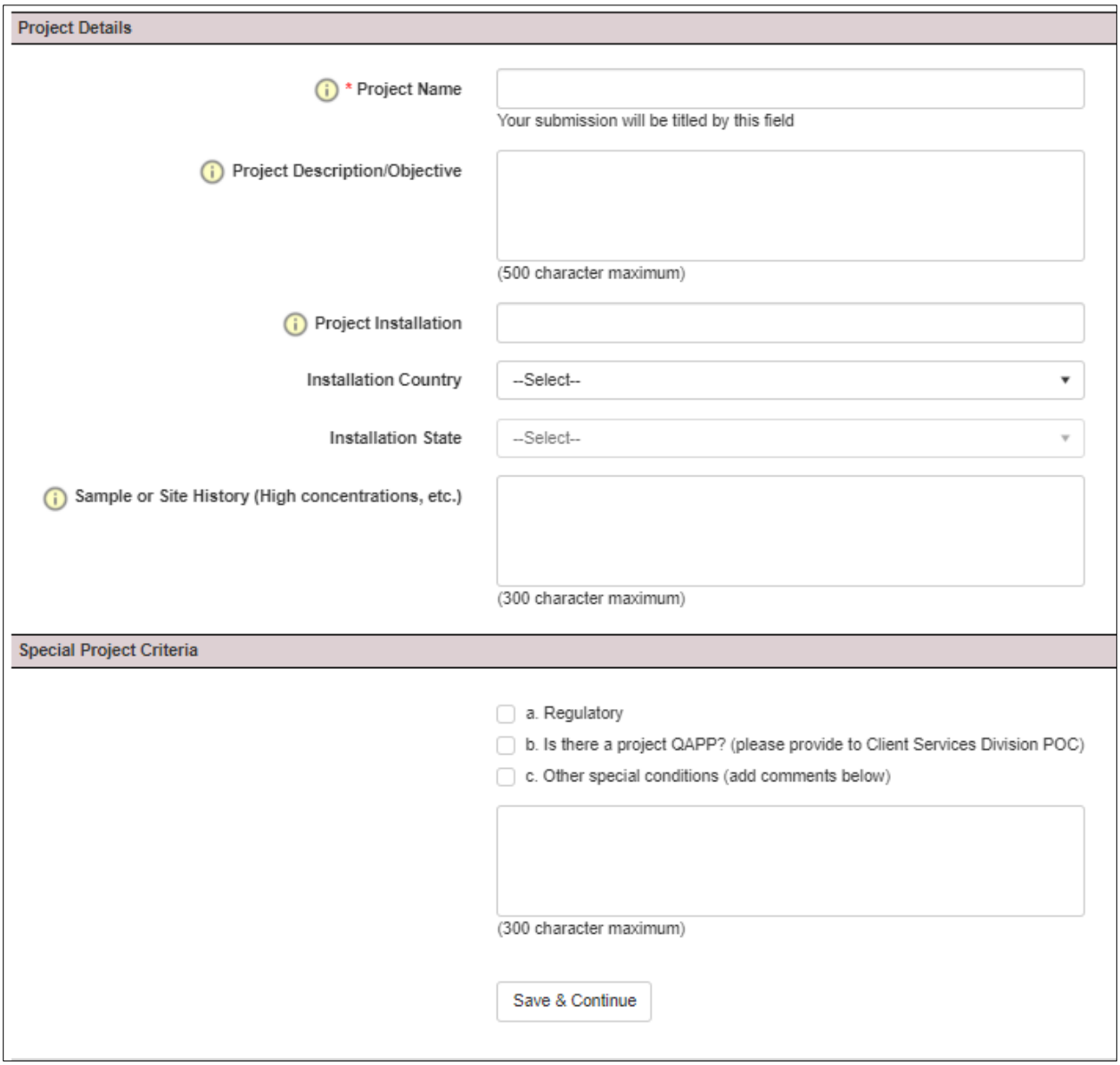


Figure B-1. LIDS 330, Request for Laboratory Services (continued)

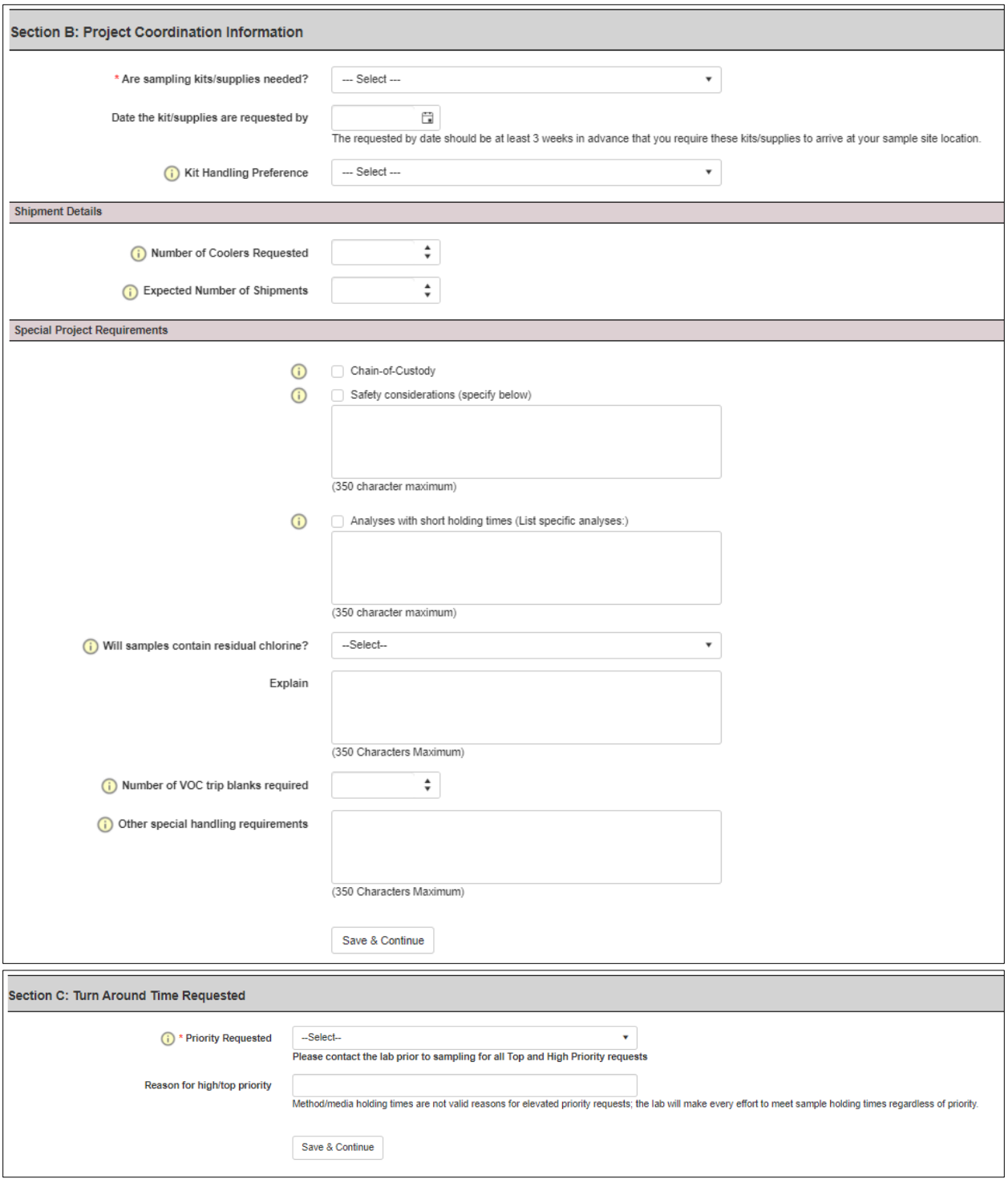


Figure B-1. LIDS 330, Request for Laboratory Services (continued)

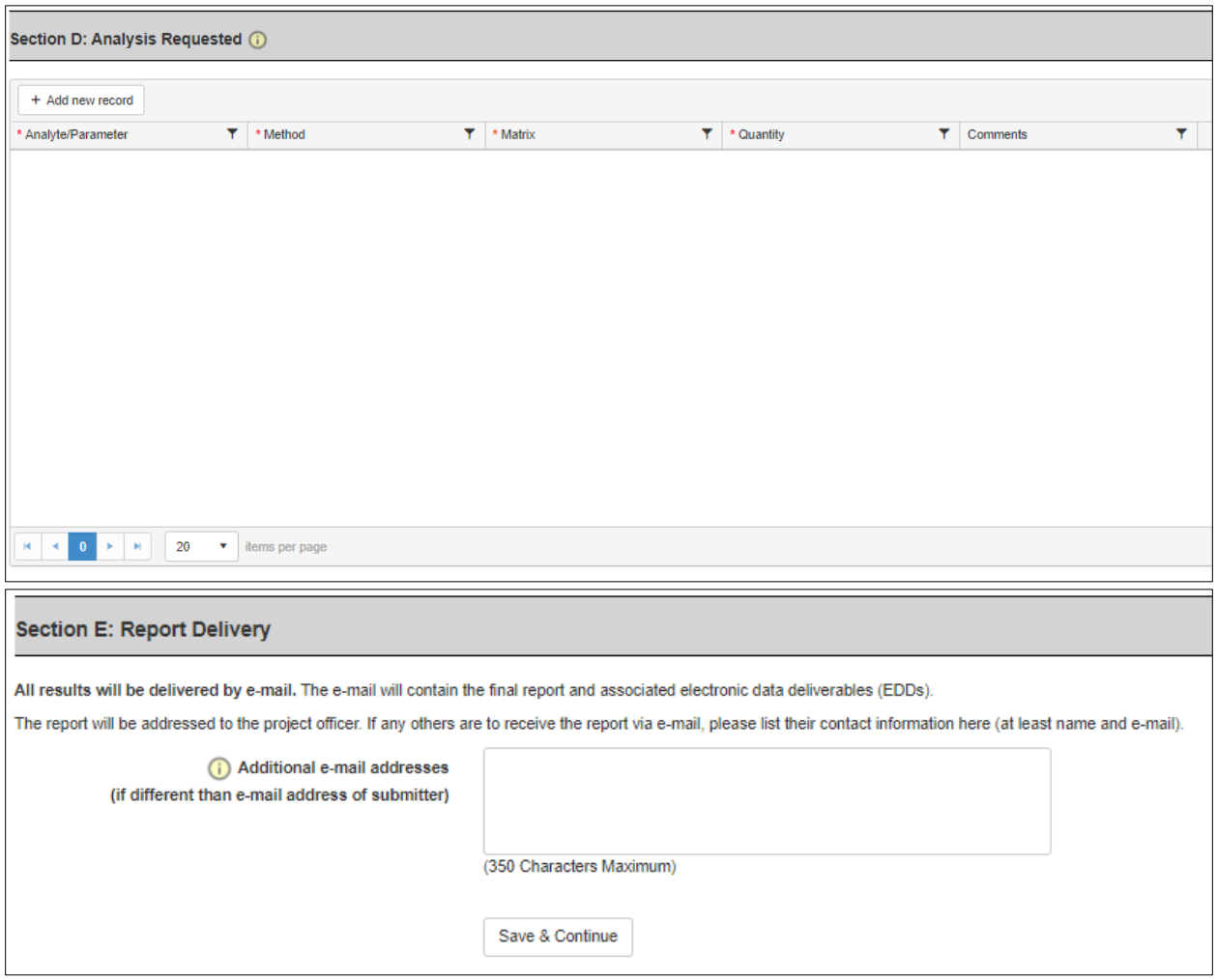
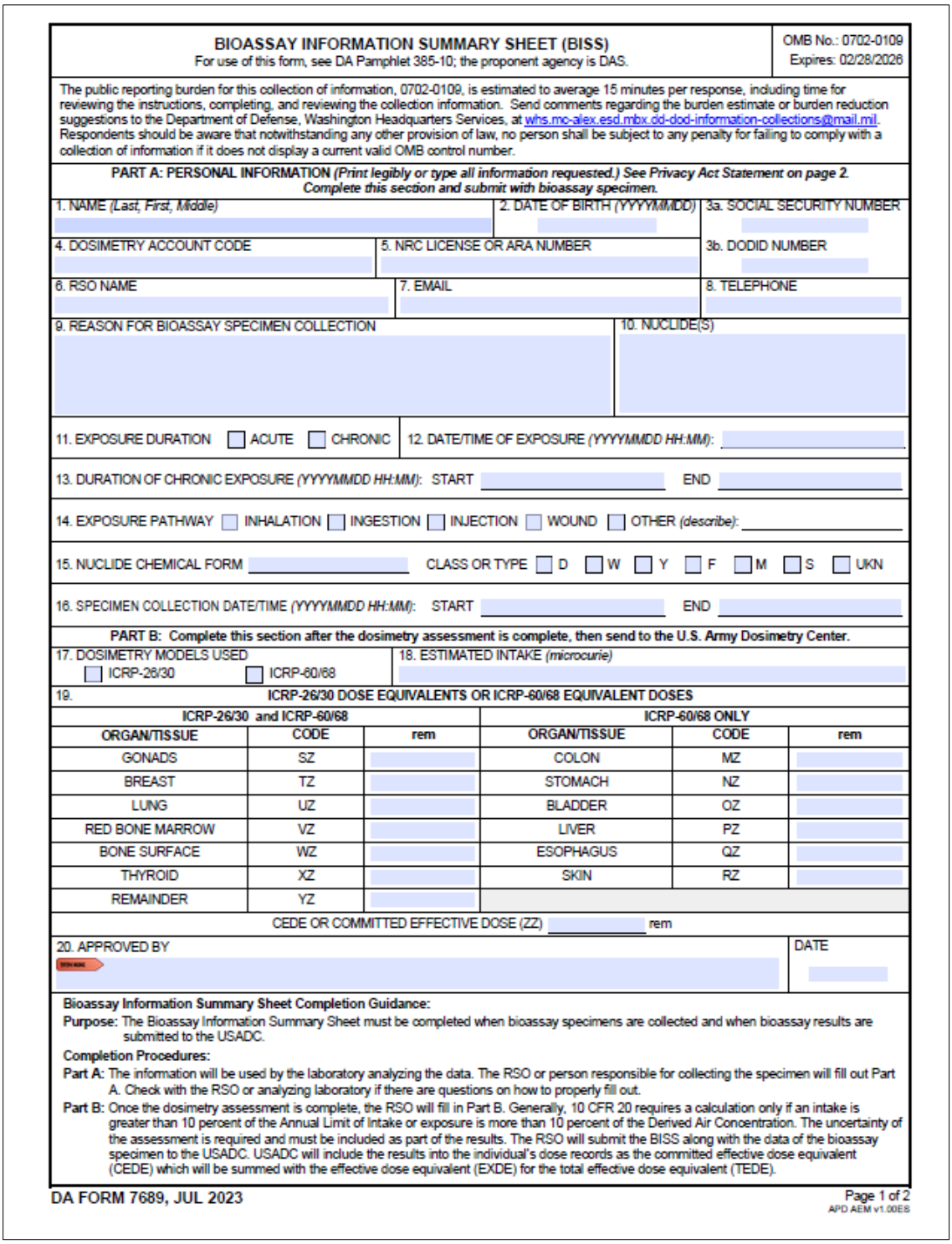


Figure B-1. LIDS 330, Request for Laboratory Services (continued)



BIOASSAY INFORMATION SUMMARY SHEET (BISS)
For use of this form, see DA Pamphlet 385-10; the proponent agency is DAS.

OMB No.: 0702-0109
Expires: 02/28/2026

The public reporting burden for this collection of information, 0702-0109, is estimated to average 15 minutes per response, including time for reviewing the instructions, completing, and reviewing the collection information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, at whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a current valid OMB control number.

PART A: PERSONAL INFORMATION *(Print legibly or type all information requested.) See Privacy Act Statement on page 2. Complete this section and submit with bioassay specimen.*

1. NAME *(Last, First, Middle)*	2. DATE OF BIRTH *(YYYYMMDD)*	3a. SOCIAL SECURITY NUMBER

4. DOSIMETRY ACCOUNT CODE	5. NRC LICENSE OR ARA NUMBER	3b. DODID NUMBER

6. RSO NAME	7. EMAIL	8. TELEPHONE

9. REASON FOR BIOASSAY SPECIMEN COLLECTION	10. NUCLIDE(S)

11. EXPOSURE DURATION ☐ ACUTE ☐ CHRONIC 12. DATE/TIME OF EXPOSURE *(YYYYMMDD HH:MM)*:

13. DURATION OF CHRONIC EXPOSURE *(YYYYMMDD HH:MM)*: START END

14. EXPOSURE PATHWAY ☐ INHALATION ☐ INGESTION ☐ INJECTION ☐ WOUND ☐ OTHER *(describe)*:

15. NUCLIDE CHEMICAL FORM CLASS OR TYPE ☐ D ☐ W ☐ Y ☐ F ☐ M ☐ S ☐ UKN

16. SPECIMEN COLLECTION DATE/TIME *(YYYYMMDD HH:MM)*: START END

PART B: Complete this section after the dosimetry assessment is complete, then send to the U.S. Army Dosimetry Center.

17. DOSIMETRY MODELS USED ☐ ICRP-26/30 ☐ ICRP-60/68	18. ESTIMATED INTAKE *(microcurie)*

19. **ICRP-26/30 DOSE EQUIVALENTS OR ICRP-60/68 EQUIVALENT DOSES**

ICRP-26/30 and ICRP-60/68			ICRP-60/68 ONLY		
ORGAN/TISSUE	CODE	rem	ORGAN/TISSUE	CODE	rem
GONADS	SZ		COLON	MZ	
BREAST	TZ		STOMACH	NZ	
LUNG	UZ		BLADDER	OZ	
RED BONE MARROW	VZ		LIVER	PZ	
BONE SURFACE	WZ		ESOPHAGUS	QZ	
THYROID	XZ		SKIN	RZ	
REMAINDER	YZ				

CEDE OR COMMITTED EFFECTIVE DOSE (ZZ) rem

20. APPROVED BY	DATE

Bioassay Information Summary Sheet Completion Guidance:

Purpose: The Bioassay Information Summary Sheet must be completed when bioassay specimens are collected and when bioassay results are submitted to the USADC.

Completion Procedures:

Part A: The information will be used by the laboratory analyzing the data. The RSO or person responsible for collecting the specimen will fill out Part A. Check with the RSO or analyzing laboratory if there are questions on how to properly fill out.

Part B: Once the dosimetry assessment is complete, the RSO will fill in Part B. Generally, 10 CFR 20 requires a calculation only if an intake is greater than 10 percent of the Annual Limit of Intake or exposure is more than 10 percent of the Derived Air Concentration. The uncertainty of the assessment is required and must be included as part of the results. The RSO will submit the BISS along with the data of the bioassay specimen to the USADC. USADC will include the results into the individual's dose records as the committed effective dose equivalent (CEDE) which will be summed with the effective dose equivalent (EXDE) for the total effective dose equivalent (TEDE).

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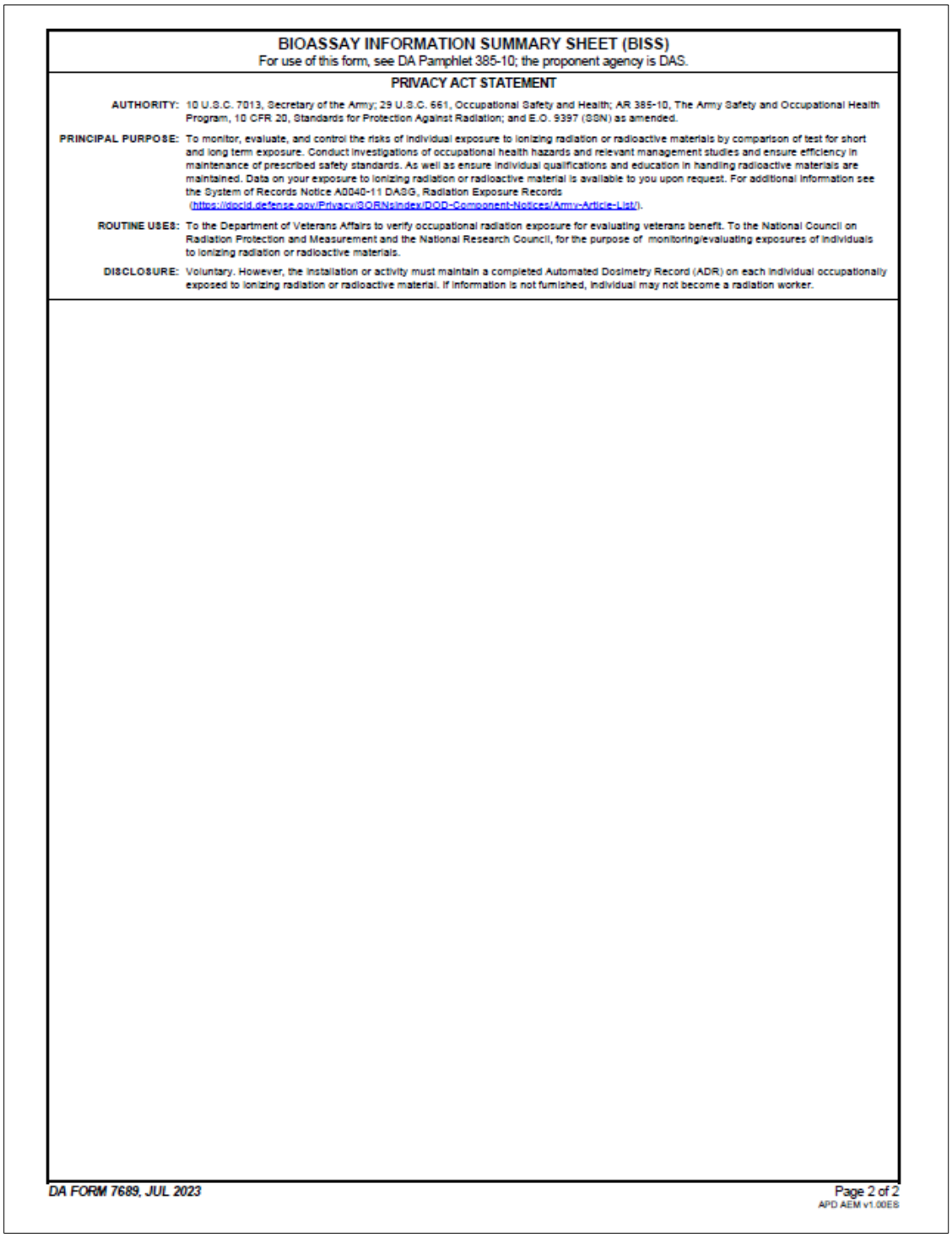
Figure B-2. Bioassay Information Sheet Sample



BIOASSAY INFORMATION SUMMARY SHEET (BISS)
For use of this form, see DA Pamphlet 385-10; the proponent agency is DAS.

PRIVACY ACT STATEMENT

AUTHORITY: 10 U.S.C. 7013, Secretary of the Army; 29 U.S.C. 661, Occupational Safety and Health; AR 385-10, The Army Safety and Occupational Health Program, 10 CFR 20, Standards for Protection Against Radiation; and E.O. 9397 (SSN) as amended.

PRINCIPAL PURPOSE: To monitor, evaluate, and control the risks of individual exposure to ionizing radiation or radioactive materials by comparison of test for short and long term exposure. Conduct investigations of occupational health hazards and relevant management studies and ensure efficiency in maintenance of prescribed safety standards. As well as ensure individual qualifications and education in handling radioactive materials are maintained. Data on your exposure to ionizing radiation or radioactive material is available to you upon request. For additional information see the System of Records Notice A0040-11 DASG, Radiation Exposure Records (https://dpcld.defense.gov/Privacy/SORNsIndex/DOD-Component-Notices/Army-Article-List/).

ROUTINE USES: To the Department of Veterans Affairs to verify occupational radiation exposure for evaluating veterans benefit. To the National Council on Radiation Protection and Measurement and the National Research Council, for the purpose of monitoring/evaluating exposures of individuals to ionizing radiation or radioactive materials.

DISCLOSURE: Voluntary. However, the installation or activity must maintain a completed Automated Dosimetry Record (ADR) on each individual occupationally exposed to ionizing radiation or radioactive material. If information is not furnished, individual may not become a radiation worker.

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Figure B-2. Bioassay Information Sheet Sample (continued)

GLOSSARY

SECTION I. ABREVIATIONS

AR
Army Regulation

APHC
U.S. Army Public Health Center

CFR
Code of Federal Regulations

DA
Department of the Army

DLA
Defense Logistics Agency

DCPH-A
Defense Centers for Public Health – Aberdeen

LAB
Laboratory Sciences Directorate

DU
Depleted Uranium

GSA
General Services Administration

HBV
Hepatitis B Virus

HIV
Human Immunodeficiency Virus

LIDS
Laboratory Information Documentation System

NCRP
National Council on Radiation Protection and Measurements

NRC
Nuclear Regulatory Commission

NSN
National Stock Number

POC
Point of Contact

RPO
Radiation Protection Officer

SF
Standard Form

SSN
Social Security Number

TG
Technical Guide

SECTION II. TERMS

Bioassay
The determination of the kind, quantity or concentration, and location of radioactive material in the human body by direct (*in vivo*) measurement or by analysis (*in vitro*) of materials excreted or removed from the body.

Creatinine analysis
A measure of kidney function.

Dosimetry Account Code
Unique letter code (2 or 3 letters) assigned by the U.S. Army Dosimetry Center to an organization that uses the ionizing radiation dosimetry service. The local RPO will normally have the information available.

Etiologic Agent
A substance which can cause disease.

NRC License Number or DA Radiation Authorization/Permit Number
Authorization document for possession, use, and management of radioactive material. The local RPO will normally have the information available.

Primary Container
A watertight vessel *(*for example*,* bottle, jar, bag, cubitainer, and so forth) that contains a specimen.

Radioactive Commodity
Item of government property composed in whole or in part of radioactive materials and to which an NSN or part number has been assigned. The user should know the name of the item resulting in bioassay.

Secondary Container
A watertight vessel (for example, steel pail, gallon can, and so forth) which contains one or more primary containers.

Shipping Container
A vessel (for example, box, carton, etc.) to which the DCPH-A LAB shipping address is affixed. A shipping container may contain one or more secondary containers.

Tritium bioassay
A single void urine specimen from personnel exposed to tritiated water or gas from standard commodities. If tritium is bound to other compounds, especially those that may be incorporated into genetic material, special collection and analyses need to be determined.

Uranium bioassay
A 24-hour void urine specimen from personnel potentially exposed to uranium or depleted uranium munitions of weapon systems.

Routine bioassay specimen. A routine bioassay specimen is a specimen collected as follows:

(1) Baseline (before exposure, pre-operational, or pre-employment).

(2) Periodic scheduled monitoring (biweekly, monthly, or quarterly).

(3) Post-operational (discontinue operation with radioactive material).

(4) Termination (end of potential exposure or employment).

An emergency or priority bioassay specimen. A bioassay specimen that is collected as a result of a potential accidental exposure to radioactive material.

Diagnostic bioassay specimen. A follow-up specimen performed as soon as possible, but no later than 1 week, to confirm the initial result in the following cases:

(1) Tritium air sampling data exceeds established limits.

(2) Tritium urinary excretion exceeds 5 microcuries per liter. Consult with appropriate personnel, such as a healthcare provider (physician, nurse, physician’s assistant, etc.), health physicist, or the licensee.

Single void urine specimen. A specimen in which all the urine from a single voiding of the bladder is collected.

24-hour urine specimen. A specimen collected over a 24-hour time period. Before starting collection, the bladder contents are voided and discarded. Then all urine is collected for a 24-hour period.