

RAS 14582



**Science Applications International Corporation**  
An Employee-Owned Company

November 16, 2005

Tom McLaughlin  
NRC  
Office of Nuclear Material Safety and Safeguards  
Two White Flint North  
Room 7E38  
11545 Rockville Pike  
Rockville, MD 20852-2738

Dear Mr. Tom McLaughlin:

On behalf of Ms. Joyce Kuykendall, RSO, U.S. Army, SAIC is submitting five copies and one CD of the following documents regarding NRC License SUB 1435:

1. Final Field Sampling Plan Addendum, Site Characterization, Deer Sampling Event (WBS 2.1.1), Depleted Uranium Impact Area, Jefferson Proving Ground, Madison, Indiana. Laboratory analytical procedures (Appendix B) will be provided separately as a CD.
2. Final Health and Safety Plan Addendum, Site Characterization, Deer Sampling Event (WBS 2.1.1), Jefferson Proving Ground, Madison, Indiana.

Best Regards,

*Corinne Shia*

Corinne Shia  
Project Manager

Encl.: As stated

cc: Paul Cloud, U.S. Army  
Joyce Kuykendall, U.S. Army  
Denise Bush, CO, USACE Louisville District  
SAIC Central Records  
Project File

U.S. NUCLEAR REGULATORY COMMISSION  
 In the Matter of U.S. Army (Jefferson Proving Ground)  
 Docket No. 40-8838-MLA Official Exhibit No. 15  
 OFFERED by: Applicant/Licensee Intervenor \_\_\_\_\_  
                   NRC Staff Other \_\_\_\_\_  
 IDENTIFIED as \_\_\_\_\_ Witness/Panel \_\_\_\_\_  
 Action Taken: **ADMITTED** **REJECTED** **WITHDRAWN**  
 Reported/Date: \_\_\_\_\_

DOCKETED  
USNRC

October 25, 2007 (2:00pm)

OFFICE OF SECRETARY  
RULEMAKINGS AND  
ADJUDICATIONS STAFF

Docket No. 40-8838-ML

TEMPLATE = SECY-027

SECY-02



**U.S. Army  
Corps of  
Engineers**

## **HEALTH AND SAFETY PLAN ADDENDUM**

**Depleted Uranium Impact Area  
Site Characterization: Deer Sampling (WBS 2.1.1)  
Jefferson Proving Ground, Madison, Indiana**

**Final**

*Prepared for:*

**U.S. Department of Army  
Installation Support Management Activity  
5183 Blackhawk Road  
Aberdeen Proving Ground, Maryland 21010-5424**

**and**

**U.S. Army Corps of Engineers  
Louisville District  
600 Dr. Martin Luther King, Jr. Place  
Louisville, Kentucky 40202-2230**

*Submitted by:*



**Science Applications International Corporation  
11251 Roger Bacon Drive  
Reston, Virginia 20190**

**Contract No: W912QR-04-D-0019  
Delivery Order: 0012**

**November 2005**

# **FIELD SAMPLING PLAN ADDENDUM**

## **Depleted Uranium Impact Area Site Characterization: Deer Sampling (WBS 2.1.1) Jefferson Proving Ground, Madison, Indiana**

**Final**

*Prepared for:*

**U.S. Department of Army  
Installation Support Management Activity  
5183 Blackhawk Road  
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**FIELD SAMPLING PLAN ADDENDUM**  
**Depleted Uranium Impact Area**  
**Site Characterization: Deer Sampling (WBS 2.1.1)**  
**Jefferson Proving Ground, Madison, Indiana**

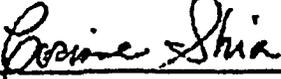
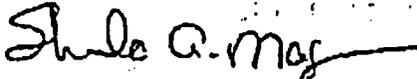
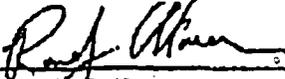
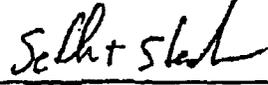
Contract No: W912QR-04-D-0019  
Delivery Order: 0012

Nuclear Regulatory Commission License SUB-1435

November 2005

**Final**

**COMMITMENT TO IMPLEMENT THE ABOVE HEALTH AND SAFETY PLAN**

 Corinne M. Shia Project Manager	(703) 318-6993 Phone	11/15/05 Date
 for Joseph E. Peters Quality Assurance Officer	(703) 318-4763 Phone	11/15/05 Date
 Randy C. Hansen Health and Safety Officer	(314) 770-3027 Phone	11/15/05 Date
 Michael W. Lambert Radiation Protection Manager	(314) 770-3000 Phone	11/15/05 Date
 Seth T. Stephenson Field Manager	(765) 278-3520 Phone	11/15/05 Date

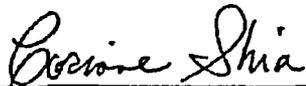
The approved Field Sampling Plan (FSP) Addendum will be provided to subcontractors (i.e., drillers, surveyors, and laboratories) at the time of subcontract execution.

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CERTIFICATION 4

CONTRACTOR STATEMENT OF INDEPENDENT TECHNICAL REVIEW

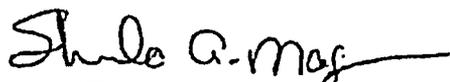
Science Applications International Corporation (SAIC) has prepared this Field Sampling Plan (FSP) Addendum for performing site characterization at Jefferson Proving Ground's Depleted Uranium Impact Area, located in Madison, Indiana. Notice is hereby given that an independent technical review has been conducted that is appropriate to the level of risk and complexity inherent in the project, as defined in the Quality Control Plan (QCP). During the independent technical review, compliance with established policy principles and procedures, utilizing justified and valid assumptions was verified. This included review of assumptions; methods, procedures, and material used in analyses; alternatives evaluated; the appropriateness of data used and level of data obtained; and reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing Corps policy.



Corinne M. Shia  
Project Manager  
Science Applications International Corporation

11/15/05

Date



for Joseph E. Peters  
Quality Assurance Officer  
Science Applications International Corporation

11/15/05

Date



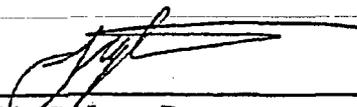
Corinne M. Shia  
Independent Technical Review Team Leader  
Science Applications International Corporation

11/15/05

Date

Significant concerns and explanation of the resolutions are documented within the project file.

As noted above, all concerns resulting from independent technical review of the project have been considered.



Lisa D. Jones-Bateman  
Vice President  
Science Applications International Corporation

11/04/05

Date

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- Appendix B. Laboratory Analytical SOPs

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## LIST OF ACRONYMS AND ABBREVIATIONS

CFR	Code of Federal Regulations
CHP	Certified Health Physicist
CSP	Certified Safety Professional
DO	Delivery Order
DOD	U.S. Department of Defense
DOE	U.S. Department of Energy
DU	Depleted Uranium
EOD	Explosive Ordnance Disposal
FSP	Field Sampling Plan
HASP	Health and Safety Plan
IDW	Investigation-derived Waste
JPG	Jefferson Proving Ground
NGB	National Guard Bureau
NWR	National Wildlife Refuge
QC	Quality Control
SAIC	Science Applications International Corporation
SOP	Standard Operating Procedure
SOW	Statement of Work
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
UXO	Unexploded Ordnance

## 1. INTRODUCTION

This document is the first Addendum to the previous Field Sampling Plan (FSP) (SAIC 2005a) prepared for the Depleted Uranium (DU) Impact Area Site Characterization Project for Jefferson Proving Ground (JPG), Madison, Indiana in May 2005. Science Applications International Corporation (SAIC) has prepared this Addendum in accordance with the statement of work (SOW) requirements under the U.S. Army Corps of Engineers (USACE) Contract No. W912QR-04-D-0019, Delivery Order (DO) No. 0012.

This FSP Addendum documents and describes specific activities and details of the JPG DU Impact Area deer sampling task that were not addressed in the FSP or have been modified from the information presented in the FSP. With this understanding, this Addendum follows the same format and relevant sections of the FSP are referenced. This document is to be used in conjunction with the existing FSP, not as a replacement. The information provided in this plan was developed for use by SAIC in support of JPG's site characterization program to assist with the collection of deer tissue. SAIC assumes no liability for the use of this information for any other purpose than as stated in this Addendum or the FSP.

Kidney, liver, bone, and muscle samples will be collected from approximately 30 deer from the DU Impact Area, nearby adjacent hunting zones, and background hunting zones. These samples will be analyzed for total uranium, U-234, U-235, and U-238. Further details concerning the scope and objectives of the deer sampling were presented in Section 6 of the FSP (SAIC 2005a).

The following sections provide additional information on the project schedule (Section 2), sample packaging and shipping requirements (Section 3), investigation-derived waste (IDW) (Section 4), data use (Section 5) and references (Section 6). The following appendices provide supporting documentation:

- **Appendix A. Deer Sampling Standard Operating Procedure (SOP)**—This appendix describes field procedures for collecting deer samples (liver, kidney, bone, and muscle) from the JPG DU Impact Area and surrounding hunting zones.
- **Appendix B. Laboratory Analytical SOPs**—This appendix presents the laboratory analytical SOPs for the constituents of interest in the deer tissue.

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## 2. DEER SAMPLING PLAN

This section summarizes the deer sampling activities to be conducted at JPG in November and December 2005. The objective of this task is to collect samples of deer tissue and analyze them for uranium radioactivity. SAIC, in collaboration with the U.S Fish and Wildlife Service (USFWS), will slay and dissect 30 deer harvesting tissue samples from the livers, kidneys, bones, and muscles from 10 deer slain within the DU Impact Area, 10 deer slain in the area surrounding the DU Impact Area, and 10 deer slain in background locations.

For work in areas where unexploded ordnance (UXO) reasonably may be exposed at the surface, anomaly avoidance procedures will be followed. This includes the clearance of work areas by visual and instrument surveys conducted by one of SAIC's qualified UXO specialists (i.e., graduate of U.S. Department of Defense [DOD] Explosive Ordnance [EO] Disposal School in Indian Head, Maryland). The surveyed areas will be marked. Non-UXO personnel will operate only within the designated cleared areas. All field work in areas where UXO reasonably may be exposed at the surface will be subject to continuous surveillance by qualified UXO personnel. Additional procedures for work in UXO areas are included in Appendix D of the Health and Safety Plan (HASP) Addendum (SAIC 2005e).

Two USFWS personnel from the Big Oaks National Wildlife Refuge (NWR) will use a Remington® .22-250 rifle with a 3.5-10 × 50 scope to slay the deer. They will lure the deer to a location using bait, shoot the deer, and use a game cart to move each deer carcass from the field for dissection by SAIC personnel. Once samples have been collected from each deer, SAIC personnel will be responsible for sample preparation, custody, and shipment to the laboratory. USFWS personnel will be responsible for scavenging the deer (i.e., moving the carcasses and entrails) to a location selected by USFWS where the deer remains will decompose naturally. Paragon Laboratories, Inc. will analyze the samples for total and isotopic uranium (i.e., U-234, U-235, and U-238) activities.

SAIC personnel are required to comply with all of the policies and procedures specified in this FSP Addendum, associated plans (SAIC 2005a, b, c, d, and e), and other referenced documents. All equipment related to USFWS personnel are not required to adhere to these same policies and procedures, but may do so at their discretion. The following bullets summarize the roles and responsibilities of the SAIC personnel responsible for conducting the deer sampling:

- Ms. Corinne M. Shia is SAIC's overall JPG Project Manager. She is responsible for all activities conducted at JPG, including the deer tissue sampling and all external coordination.
- Mr. Michael L. Barta is SAIC's Lead Ecologist for the deer sampling activities. He is responsible for developing the plans associated with the deer sampling event and will be present at JPG during the first week. While present at JPG, he will be the primary point of contact for SAIC.
- Mr. Seth T. Stephenson will serve as the Field Manager and provide UXO avoidance support. He is a graduate of the EOD School in Indian Head, Maryland, and has served as the UXO Team Member and UXO Supervisor on surveys and removal actions at DOD sites. When Mr. Barta is not present at JPG, he will be the primary point of contact for SAIC and will be responsible for ensuring work activities are conducted in accordance with the procedures and policies specified in this HASP Addendum and other related project plans.
- Mr. Randy C. Hansen will serve as the Project Health and Safety Officer. He is a certified safety professional (CSP) and has supervised the environmental radiation protection program on remedial action projects involving radiological contamination. He has experience supporting field operations at JPG.

- Mr. Michael W. Lambert will serve as the Radiation Protection Manager. He is a certified health physicist (CHP) in SAIC's St. Louis office who specializes in environmental compliance, industrial hygiene, occupational safety, and radiation protection.
- Mr. Joseph E. Peters will be the Quality Control (QC) Manager for all of SAIC's work at JPG. He will conduct a laboratory surveillance to ensure that project personnel training requirements are properly documented and up to date. In addition, he will ensure that appropriate laboratory procedures are being followed. He is the QC Manager for USACE, National Guard Bureau (NGB), and U.S. Department of Energy (DOE) contracts and has extensive experience in working with laboratories and validating chemical and radiological data.
- Ms. Sara Haddox will be the Sample Manager. She is responsible for extricating, preparing, and shipping samples to Paragon Laboratories, Inc. for analysis. She also is responsible for ensuring sampling equipment and containers are available when needed.

SAIC is proposing to collect all deer in the first round of sampling between November 28 and December 16, 2005. Deer collection generally will occur every evening beginning at dusk Monday through Friday until all deer samples have been collected. If the bait stations are particularly successful in attracting deer, some sampling might start in the late afternoon. In the event that few deer (less than 5) are collected during the first week of sampling, the Army will consult with USFWS on whether to continue sampling as planned for the remaining 2 weeks or delay until February. The current sampling period was selected to occur after general hunting season ended (the week prior to November 28<sup>th</sup>). As a result, deer may be skittish and less responsive to the bait stations. In such an event, by February the deer should be less skittish and more responsive to bait. If after 3 weeks of sampling more than 20 but not 30 deer have been collected, the Army will consult with USFWS on what timeframe in December or January to conduct 1 more week's worth of sampling.

### 3. SAMPLE PACKAGING AND SHIPPING REQUIREMENTS

Information concerning sample packaging and shipping are provided in Section 8 of the HASP (SAIC 2005b). The HASP indicated that the biota samples would be stored in Ziploc<sup>®</sup> bags on dry ice. As the use of either dry ice or regular ice is acceptable and dry ice introduces additional logistical issues (e.g., nearby supplier), regular ice will be used instead of dry ice. In addition, the laboratory has requested that the samples be shipped in glass jars rather than Ziploc<sup>®</sup> bags. These changes are reflected in Section 3.1.

#### 3.1 SAMPLE VOLUMES, TYPES, AND PRESERVATIVE REQUIREMENTS

The sample volumes, types, and preservative requirements for biota sampling are identified in Table 3-1.

**Table 3-1. Sample Volumes, Types, and Preservative Requirements for Biota Samples  
Jefferson Proving Ground, Madison, Indiana**

Sample Type	Analysis	Volume	Container	Preservative
Biota	Total and isotopic uranium	75-100 grams	Glass jars	Frozen upon collection or field dressing/dissection using regular ice

#### 3.2 SAMPLE CONTAINER SHIPMENTS FROM PARAGON ANALYTICS

All sample containers, coolers, and associated equipment will be shipped from Paragon Analytics to the following address:

Jefferson Proving Ground  
Attn: Ken Knouf/SAIC  
Building 125  
1661 West JPG Niblo Road  
Madison, IN 47250-9700

The first shipment will occur prior to the start of sampling on November 28, 2005. If sample collection is successful during week 1, additional shipments will be made at the end of week 1 or the beginning of week 2. SAIC will coordinate with Paragon Analytics concerning specific shipping dates.

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#### **4. INVESTIGATION-DERIVED WASTES**

IDW generated during deer sampling includes equipment (e.g., knives and saw) decontamination liquids. Equipment decontamination liquid will be disposed of on the ground given that equipment will be surveyed and decontaminated using dry methods prior to proceeding with decontamination operations specified in Appendix A of this FSP Addendum. Any waste determined to be radioactive will be surveyed, packaged, stored, and transported in accordance with applicable regulations (10 Code of Federal Regulations [CFR] Part 20, 10 CFR Part 61, 49 CFR Parts 171-178 and, if shipped by air, International Air Transport Association requirements).

Once samples have been collected from deer, the carcasses will be scavenged (all remains including the entrails will be allowed to decompose naturally) at a location(s) designated by USFWS. The FSP (SAIC 2005a) indicated that meat collected from the adjacent hunting zones and northern hunting zones might be donated; however, due to logistical concerns, all of the deer collected from the adjacent hunting zones and northern hunting zones also will be scavenged. The USFWS will be responsible for deer scavenging. Scavenging within the DU Impact Area will be limited to areas adjacent to roads to minimize UXO hazards, and any pathways from the road will be cleared first by trained UXO personnel.

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## 5. DATA USE

A deer tissue sampling report will be prepared that summarizes all data collected for each individual deer and each sampling group. A brief comparison of the results to historical data will be presented. As specified in the FSP (SAIC 2005a), if no DU is detected in deer tissue from the nearby hunting zones and the DU Impact Area above background levels, verification sampling of deer in 2007 will not occur. If DU is detected at levels above background, supporting analyses will be conducted in the deer tissue sampling report to determine if additional deer samples will be collected in 2007 to verify the 2005 data. These supporting analyses include estimating food ingestion risks to hunters and analysis of abiotic (e.g., surface soil, surface water) sampling data.

In addition, the report will conclude with a recommendation as to whether other biota samples are required. The trigger to collect tissue data from other biota will be based on a weight-of-evidence approach using the results of the abiotic sampling as well as the deer tissue sampling.

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## 6. REFERENCES

- SAIC (Science Applications International Corporation). 2005a. Field Sampling Plan, Site Characterization of the Depleted Uranium Impact Area. Final. May.
- SAIC. 2005b. Health and Safety Plan, Site Characterization of the Depleted Uranium Impact Area. Final. May.
- SAIC. 2005c. Quality Control Plan, Site Characterization of the Depleted Uranium Impact Area. Final May.
- SAIC. 2005d. Memorandum, Airborne Transport of DU and Site Characterization Needs. From Corinne Shia, SAIC to Paul Cloud, BRAC Environmental Coordinator and Joyce Kuykendall, Radiation Safety Officer, U.S. Army. Final. January 13.
- SAIC. 2005e. Health and Safety Plan Addendum, Site Characterization, Deer Sampling of the Depleted Uranium Impact Area. Draft. November.

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**APPENDIX A**  
**DEER SAMPLING SOP**

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## 1.0 PURPOSE

The purpose of this procedure is to define the requirements necessary for collection of deer tissue performed by and/or assisted by Science Applications International Corporation (SAIC). This procedure describes the methods and equipment commonly used for collecting deer, performing deer dissections, and collecting tissue and bone samples.

## 2.0 SCOPE

Deer collection and dissection and collection of deer samples is applicable to any site that contains habitat capable of supporting deer populations.

## 3.0 REFERENCES

- 3.1 Science Applications International Corporation Field Technical Procedure (SAIC FTP) 400, Equipment Decontamination.
- 3.2 Science Applications International Corporation Field Technical Procedure (SAIC FTP) 1215, Use of Field Logbooks.
- 3.3 SAIC. 2005. Field Sampling Plan (FSP), Site Characterization of the Depleted Uranium Impact Area. May.
- 3.4 SAIC. 2005. Field Sampling Plan (FSP) Addendum, Site Characterization, Deer Sampling, of the Depleted Uranium Impact Area. Draft. November.
- 3.5 SAIC. 2005. Health and Safety Plan (HASP), Site Characterization of the Depleted Uranium Impact Area. Final. May.
- 3.6 SAIC. 2005. Health and Safety Plan Addendum, Site Characterization of the Depleted Uranium Impact Area. Final. November.
- 3.7 SAIC. Var Dates. SAIC St. Louis, Missouri Health Physics Manual (HP-01) and Procedures (HP-02 to 52). SAIC, St. Louis, MO.

## 4.0 DEFINITIONS

None.

## 5.0 RESPONSIBILITIES

### 5.1 PROJECT MANAGER

The Project Manager is responsible for:

- 5.1.1 approving this procedure;
- 5.1.2 designating a qualified person to train personnel who will be using this procedure;
- 5.1.3 ensuring that all personnel are properly trained;
- 5.1.4 ensuring that this and all appropriate procedures, including all health and safety matters, are followed;
- 5.1.5 oversight of biota sampling; and

- 5.1.6 verifying that the appropriate training records are submitted to the Central Records Facility (CRF).

## 5.2 QUALITY ASSURANCE/QUALITY CONTROL OFFICER

The QA/QC Officer is responsible for:

- 5.2.1 approving this procedure; and
- 5.2.2 verifying that this and all appropriate procedures are being followed through scheduled surveillance.

## 5.3 SITE HEALTH AND SAFETY OFFICER

The SHSO is responsible for ensuring that appropriate SAIC and contractual H&S policies and procedures are in effect and verifying enforcement of same by line management.

## 5.4 BIOTA SAMPLING MANAGER

The Biota Sampling Manager is responsible for:

- 5.4.1 ensuring that all personnel are properly trained;
- 5.4.2 ensuring that this and all appropriate procedures are followed; and
- 5.4.3 verifying that the appropriate training records are submitted to the CRF.

## 5.5 FIELD MANAGER

The Field Manager is responsible for:

- 5.5.1 ensuring that all personnel perform their assigned duties in accordance with this procedure when it is applicable;
- 5.5.2 ensuring compliance with the Field Sampling Plan and Health and Safety Plan and related addenda; and
- 5.5.3 overall management of field activities.

## 5.6 HEALTH PHYSICS TECHNICIAN

The Health Physics Technician (HPT) is responsible for

- 5.6.1 implementing the health physics program and supporting procedures under the direction of the RSO or RPM
- 5.6.2 immediately reporting nonconformance with health physics procedures and policies to the RSO or RPM and the Field Manager
- 5.6.3 maintaining, in conjunction with the Field Manager, health physics training and qualifications current
- 5.6.4 stopping work or ordering an area evacuated, in consultation with the Field Manager, when in his/her judgment radiological conditions warrant such an action and such actions are consistent with site and personnel safety.

When the field crew is working within the boundaries of the DU Impact Area, a senior HPT will be assigned to perform this function. The HPT will perform these functions at all other locations.

## 6.0 GENERAL

- 6.1 It is SAIC policy to maintain an effective program to control employee exposure to chemical, radiological, and physical stress which is consistent with U.S. Army and Occupational Safety and Health Administration (OSHA) established standards and requirements.
- 6.2 Any deviations from specified requirements will be justified to and authorized by the Project Manager and/or his/her designee.
- 6.3 Deviations from requirements are sufficiently documented to allow re-creation of the modified process.
- 6.4 Refer to the site- or project-specific HASP and HASP Addendum for relevant H&S requirements.
- 6.5 Refer to the FSP and FSP Addendum for project/task-specific sampling and analysis requirements.
- 6.6 SAIC personnel who use this procedure must provide documented evidence of having been trained on the procedure to the Project Manager for transmittal to the CRF.

## 7.0 STANDARD OPERATING PROCEDURES

### 7.1 PREPARATION

- 7.1.1 Personnel executing the protocols described in this procedure are instructed in the use of the sampling equipment and in proper identification of deer tissues.
- 7.1.2 At least two days prior to sample collection, the U.S. Fish and Wildlife Service (USFWS) will place bait at locations in the Depleted Uranium (DU) Impact Area, nearby adjacent hunting zones, and the northern hunting zones. If possible, USFWS will place all bait stations near roads. Not only will this bait station placement expedite deer retrieval in all three collection areas but also minimize potential exposures to unexploded ordnance (UXO).

### 7.2 RADIATION PROTECTION MONITORING

#### 7.2.1 General

- 1 All work (deer collection and tissue sampling) within the JPG DU Impact Area shall be performed in accordance with the requirements in HP-01, "Health Physics Manual." Personnel accessing these areas and providing radiological support shall be trained and qualified in accordance with HP-01 and HP-04, "Qualifications and Training."
- 2 The HPT supporting these activities shall maintain a logbook, independent of the project logbook, with appropriate entries made daily while tasks are performed in the DU Impact Area, as well as collection and packaging of samples. HP support activities shall be performed in accordance with HP-12, "Health Physics Oversight." This logbook is to be provided to the Field Manager at the conclusion of the field work and is subject to review and surveillance.
- 3 The HPT shall select and use instrumentation appropriate for the contaminants of concern in the DU Impact Area. Instruments shall be used and maintained in accordance with HP-30, "Radiological Instrumentation." Radioactive sources used at JPG for quality control verification of HP instrumentation performance shall be maintained in accordance with HP-23, "Radiological Source Control." Radioactive sources shall be secured from

unauthorized access, loss, or theft at all times while not in the immediate possession of the HPT.

- 4 The HPT shall brief all qualified radiological workers requiring access to the DU Impact Area or involved in deer collection and tissue sampling prior to initiating associated tasks or area access. HSWP briefings shall occur daily in conjunction with the daily safety briefings led by the Field Manager while access to the DU Impact Area is required and/or deer collection and sampling is performed. Briefings shall be performed and documented in accordance with HP-21, "Health and Safety Work Permits."
- 7.2.2 The HPT shall monitor the deer collection locations within the DU Impact Area, deer transport cart, sample collection locations, samples, sample media, used PPE, vehicles, and the external surfaces of each sample shipping container and generate the required records in accordance with HP-30, "Radiological Monitoring."
- 7.2.3 Personnel monitoring shall include the following protocol:
  - 1 All personnel exiting the DU Impact Area shall perform a minimum of a hand and foot frisk to detect the presence of radioactive contamination.
  - 2 Personnel handling and moving deer shall perform a whole body frisk prior to exiting the DU Impact Area.
  - 3 Deer tissue samplers shall monitor hands periodically while handling deer and collecting/packaging samples.
- 7.2.4 If a personal injury occurs while inside the DU Impact Area (e.g., collecting deer, tissue sampling), the HPT shall perform radiological monitoring of the individual and/or wound site. At no time shall radiological monitoring interfere with or impede any actions necessary to render life saving first aid/medical treatment or stabilize the individual.
- 7.2.5 The HPT shall make appropriate notifications and generate reports as required by HP-22, "Radiological Reporting."

### 7.3 DEER COLLECTION

- 7.3.1 Around 4:30 PM each evening, USFWS and SAIC personnel will leave to collect from 1 to approximately 4 deer. Once within a few miles of a bait station, the USFWS vehicle will approach first approximately 0.5 miles ahead of the SAIC vehicle. Once USFWS personnel have spotted deer and indicated that an attempt to collect deer will occur, SAIC personnel will stop their vehicle approximately 0.5 miles behind and remain in their vehicle until USFWS personnel indicate via cell phone or radio that deer collection has occurred and retrieval can begin. SAIC personnel will not assist USFWS in spotting deer.
- 7.3.2 USFWS will kill deer using a rifle.
- 7.3.3 For work in areas where UXO reasonably may be exposed at the surface, such as off road paths leading to deer in the DU Impact Area, the work areas will be cleared by visual and instrument surveys conducted by a qualified UXO Specialist. The surveyed areas will be marked and non-UXO personnel will operate only within the designated cleared areas. All field work in areas where UXO reasonably may be exposed at the surface will be subject to continuous surveillance by qualified UXO personnel. UXO personnel will clear UXO areas as described in the HASP Addendum.
- 7.3.4 The location of deer collection and the deer killed within the DU Impact Area shall be surveyed by the HPT prior to movement of the deer. Particular attention shall be given the hooves and lower legs of the deer, as well as the side of the deer that makes contact with the ground (assistance with movement of the deer to facilitate this survey may be

allowed if initial radiological conditions permit). If radioactive contamination is detected on the deer in excess of the limits in Table 8-1 of the HASP or radiological surveys indicate the need for posting the area as a "Radiation Area," the deer shall not be handled, the area shall be posted and controlled in accordance with HP-20, "Radiological Posting," personnel shall not be allowed to access that location, and the HSWP shall be suspended pending review and any necessary revision.

- 7.3.5 Prior to movement of the deer, the exact location where the deer is collected will be documented using a global positioning system (GPS). If measurements are precluded at the precise location (e.g., tree canopy) where the deer falls, measurements will be taken at the closest location and will be recorded in the field logbook.
- 7.3.6 SAIC personnel will assist USFWS staff in loading the deer onto a deer cart. Deer will then be hauled to the road where sample collection will occur. In the event that a wounded deer flees the bait area, no chase will occur given the UXO hazards. If the deer drops within 30 yards of the bait area, then the UXO Technician will clear a path in order to retrieve the deer.
- 7.3.7 Once near the side of the road, the sampling location, weather conditions, sex, and weight of each deer as well as the presence of any external anomalies observed by USFWS will be noted and recorded on the Biota Sample Worksheet (Section 7 of the FSP) or field logbook prior to dissection. Individuals are weighed by suspending the animal within a net from a scale.
- 7.3.8 A site control zone will be established for field crew performing deer dissections in accordance with the FSP. Field vehicles will be positioned to protect the samplers from traffic during dissection.

#### 7.4 TISSUE COLLECTION

- 7.4.1 Only one deer will be sampled at a time. Depending on the time of night after the first round of samples have been prepped, USFWS personnel may capture another one to four deer. If it is too late at night to continue sampling or weather precludes further sampling, the sampling teams will return to USFWS Headquarters, Building 125, which is located in the Cantonment Area of JPG.
- 7.4.2 Radiation monitoring procedures during deer dissection include the following:
  - 1. Radiological contamination monitoring shall be performed using radiological instruments capable of detecting the radiation emitted from the contaminants of concern at JPG (i.e., depleted uranium) and with a detection sensitivity and survey technique sufficient to detect contamination at or below the applicable limit(s) in Table 8-1 of the HASP.
  - 2. Prior to entering or exiting the site control zone, personnel radioactive contamination monitoring shall be completed to verify no detectable contamination above background. If contamination is detected, the HPT shall assist in confirming the contamination and direct decontamination in accordance with HP-10, "Personal and Equipment Decontamination."
- 7.4.3 The deer will be placed within the site control zone on the ground on plastic. All deer handlers will wear nitrile gloves. Staff performing gross and/or fine dissection will don protective gloves beneath the nitrile gloves.
- 7.4.4 Gross dissection to expose the abdominal cavity and muscle will be achieved with a knife.
- 7.4.5 Muscle, liver, and kidney samples then will be collected with a disposable scalpel. Bone tissues will be collected with a bone saw and all tissues will be scraped from the bone.

Tissue and bone samples then will be labeled, packed in glass jars, and frozen on ice. 100 grams each of muscle, liver, and kidney will be collected while about 30 grams of bone (3 to 4 inches [7.5 to 10 centimeters]) from the foreleg will be collected. No tissue preservatives will be used.

- 7.4.6 A glass sample container will be wiped clean so that a label and security seal may be placed on it.
- 7.4.7 All material and equipment used to collect tissue and bone samples, as well as PPE that may have come into contact with the deer, deer samples, and deer sampling tools shall be surveyed by the HPT. If contamination is detected on the tissue or bone, the HPT shall contact the Project Manager to assess the need to further evaluate the radioactive content and classify and ship the samples as Class 7 hazardous material. All other material, tools, and equipment shall be decontaminated after use and a post-decontamination survey performed and recorded. Equipment and material shall not be used if post-decontamination surveys indicate the presence of radioactive contamination above background. All PPE, materials, tools, etc. with detectable contamination above background and which cannot be decontaminated shall be segregated and bagged as radioactive waste, labeled, and controlled in accordance with HP-25, "Storage and Control of Radioactive Waste."
- 7.4.8 Decontamination of knives and the bone saw will be conducted within a temporary decontamination pad. The decontamination pad will be designed so that all decontamination liquids are contained and can be disposed of into the surrounding environment after decontamination is complete. Nondedicated equipment will be decontaminated after each piece of sampling equipment is used. The procedure for decontamination of equipment will be as follows:
1. Survey equipment for removable radioactive contamination. If radioactive contamination is detected above background, the surface shall be decontaminated using dry methods. All equipment that cannot be decontaminated will be managed in accordance with Section 7.4.7.
  2. Wash with approved water and phosphate-free detergent using various types of brushes required to remove particulate matter and surface films.
  3. Rinse thoroughly with approved potable water.
  4. Rinse thoroughly with American Society for Testing and Materials (ASTM) Type I or equivalent water.
  5. Allow equipment to dry as long as possible.
  6. Place equipment on clean plastic if immediate use is anticipated or wrap in aluminum foil or bags to prevent contamination if longer-term storage is required. Decontamination liquids will be disposed of on the ground after all related operations are completed.
- 7.4.9 Sharp items, such as scalpels, which will be discarded, will be placed in a sharps box.
- 7.4.10 All samples will be surveyed and stored in a freezer in a secured location until shipping, which will not occur until after the samples are frozen solid (at least 48 hours in the freezer). During packaging for shipping to the analytical laboratory, the external surfaces of sample packages (coolers) shall be surveyed for removable radioactive contamination. If contamination is detected above background, the surface shall be decontaminated using dry methods.
- 7.4.11 Once samples have been collected from the deer, the carcasses will be scavenged (i.e., removed from the site control zone and disposed of) at a location designated by

USFWS. USFWS is responsible for completing all scavenging of the deer carcasses and entrails. However, scavenging within the DU Impact Area will be limited to areas adjacent to roads to minimize UXO hazards and any pathways from the road will be cleared first by trained UXO personnel.

7.4.12 Following completion of field work, all radioactive waste generated, if any, shall be turned over to the Department of Army for secured storage pending removal of the material from the site if removal is delayed.

## 8.0 RECORDS

Documentation generated as a result of this procedure is collected and maintained in accordance with requirements specified in QAAP 17.1, Records Management.

## 9.0 ATTACHMENTS

### 9.1 ATTACHMENT 1 – FIELD CHECKLIST

**ATTACHMENT 1  
FIELD CHECKLIST**

- Health and Safety Plan (HASP) and HASP Addendum
- Field Sampling Plan (FSP) and FSP Addendum
- HSP Addendum
- FSP Addendum
- Rifle with scope
- Ammunition
- Ear protection
- Scale
- Game cart
- Knives
- Bone saw
- Net
- Floodlights, headlights, and battery packs
- Logbooks
- Black indelible pen
- Nitrile/leather gloves
- Trash bags
- Disposable scalpels
- Decontamination equipment for knives and saw
- Gloves, face shields
- Safety shoes
- Safety glasses or monogoggles
- Cell phone/two-way radios
- Magnetometer
- Radiation Monitoring Equipment
- Freezer
- Lighting
- Canopy
- Coolers
- Sample containers
- Sharps box
- Reflective vests
- Generator
- Digital camera
- Duct/strapping tape
- Alconox
- First aid kit
- GPS unit
- Tyvek
- Computer.

**APPENDIX B**

**LABORATORY ANALYTICAL SOPs**  
**(submitted separately on CD)**