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Environment, Safety, Health Directorate

Waste and Environmental Services

Technical Procedure

Produce Sampling

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REVISION HISTORY

Document Number and Revision *[Include revision number, beginning with Revision 0]*	**Effective Date** *[Document Control Coordinator inserts effective date]*	**Description of Changes** *[List specific changes made since the previous revision]*
ENV-SOP-5134 R0	10/4/96	New Document
1	3/99	Reformatted in accordance with LIR300-00-01, Safe Work Practices.
2	4/01	Added new Section 9.0, Training.
3	4/02	Change in directorate.
4	4/03	Team name change to Environmental Surveillance.
5	5/12/04	Updated and reformatted document to conform to MAQ procedures.
6	04/11/05	Quick-change revision to convert HCP attachment to HR.
7	04/12/06	Quick-change revision to revise safety equipment requirements in HR.
8	1/30/08	Renumbered and reformatted to WES Division
ENV-ES-TP-004, R0	9/4/2015	Renumbered and reformatted to ENV Division

Table of Contents

1.0 PURPOSE AND SCOPE

The purpose of this procedure is to describe the method of collection for domestic and wild edible crop (fruit, vegetable, and grain) samples. This procedure applies to the individual(s) assigned to collect these samples as part of the Soil, Foodstuffs, and Biota Monitoring Program.

2.0 BACKGROUND AND PRECUATIONS

2.1 Background

This document establishes the basic requirements for collecting domestic and wild edible crop samples within and around Los Alamos National Laboratory (LANL). LANL personnel will perform the work described in this procedure.

Domestic crop samples collected include the following three types of produce:

- Fruits: apricots, apples, crabapples, peaches, pears, plums, melons, cherries, tomatoes, etc.
- Vegetables: chile, sweet corn, cucumbers, lettuce, pumpkins, squash, etc.
- Grain: corn, wheat, oats, etc.

Wild edible samples collected include piñon, wax current, purslane, lambsquarters, prickly pear, etc.

Produce and/or wild edible plant samples are collected from four areas:

- On-site: Includes sites on Laboratory property.
- Perimeter: Includes Los Alamos townsite, White Rock / Pajarito Acres, and San Ildefonso Pueblo.
- Farms downstream of LANL and irrigated with Rio Grande water: Includes Cochiti Pueblo, Sile, and Peña Blanca.
- Regional background: Areas around the Laboratory greater than nine miles away and includes farms from the Española Valley to the north, Santa Fe to the east, Abiquiu Valley to the northwest, and Jemez Valley to the south of LANL.

2.2 Precautions

Individuals are required to be trained in the following before performing this procedure:

- First aid
- Cardiopulmonary resuscitation (CPR)
- General Field Safety Self Study (ENV-DO-SOP-100 0; UTrain Course 40531)

Two (2) people, minimum, are required to go out in the field for sample collection. Do not perform work under conditions you consider unsafe. Before beginning work described in this procedure, review safety needs and requirements, identify hazards, and develop hazard mitigation measures.

3.0 EQUIPMENT AND TOOLS

Required equipment and tools for sample collection are listed below:

- Chain-of-custody (COC) forms
- Rubber gloves
- Marker for labeling bags
- Ice chest with blue ice
- Ziploc® bags or equivalent (1-gallon size)
- Personal protective equipment ([PPE] e.g., safety glasses, safety/field shoes, Kevlar® safety gloves, sunscreen, hat).

4.0 STEP-BY-STEP PROCESS DESCRIPTION

4.1 Preparatory Activities

Sampler or Field Team Leader (FTL)

1. Determine which locations will be sampled from on-site, perimeter, and off-site areas. In general, 5 to 10 samples are collected per site. Lists of sample locations and amounts of samples collected from each location can be found in the Los Alamos National Laboratory Annual Site Environmental Report (formerly the Environmental Surveillance Report).
2. Obtain COC forms and labels from the Sample Management Office.
3. Conduct a hazard review in accordance with Attachment 1, Hazard Review for Produce Sampling.
4. Check the condition of the vehicle and the fuel level before leaving the field.
5. Identify a point of contact to provide pertinent information of destination, expected time in, and methods of notifying the field team.
6. Notify the group office to place you on travel status when leaving Los Alamos County.
7. Ensure you have a working cell phone and a pager.

4.2 Produce Sampling Steps

Sampler or FTL

1. Travel to the sampling location and obtain permission from the garden owner to collect produce. It is best if you can collect the samples directly from the garden.
2. Collect approximately 3 lb. of produce by hand, wash and towel dry, and place into a clean Ziploc® (or equivalent) bag. Collect produce as if you were harvesting for human consumption. Fill out the COC label with the sample location, date, time, and your initials and place on bag. Also, seal the bag with COC tape. (Note: Washing all dirt off the samples is MANDATORY. If it is not possible to wash the samples in the field and samples are washed at another location, do not place the clean samples into the old bag. Use a clean and unused bag.)

3. Place the bags in the cooler with ice for transport back to the laboratory.
4. Complete a COC form with the appropriate sampling information. Maintain COC for samples until they are submitted to an analytical laboratory for analysis.
5. Obtain an X and Y coordinate for every sample location and record on the COC.
6. Store the samples in a freezer until they are submitted to an analytical laboratory.

4.3 Maintaining Custody of Samples

Sampler or FTL

1. Document COC for all samples used to demonstrate compliance.
2. Verify the possession and handling of samples is traceable at all times.
   [**Note:** A sample is considered in custody if one of the following conditions is met:
   - The sample is in one's physical possession;
   - The sample is in one's view after being in one's physical possession;
   - The sample is in one's physical possession and then locked up so that no one can tamper with it; or
   - The sample is kept in a secure area where access is restricted to authorized and accountable personnel only.

   A secured area is an area that is locked (e.g., a room, cooler, vehicle, or refrigerator).]
3. Use a custody seal to secure the area or the sample container if the area cannot be secured.

4.4 Transferring Custody of Samples

Sampler or FTL

1. Complete the "relinquished by/received by" and "date" sections of the form whenever samples are transferred into the custody of another person or organization.

   Note: These sections of the form must provide a complete history of custody of the samples from collection to transfer to the analytical laboratory.

4.5 Broken Chain-of-Custody

Sampler or FTL

1. Document the failure by initiating a deficiency report whenever there is a break in the COC of a sample.
2. Document the occurrence, evaluate the potential impact (if any) on the samples, and propose a fix to prevent recurrence.

4.6 Emergency Actions to Take in the Event of Injury

Sampler or FTL

1. Perform first aid for cuts, as appropriate.
2. Provide first aid for all injuries, and see that the injured person is taken to Occupational Medicine (only if immediate medical attention is not required) or to the nearest hospital.
3. Notify the individual's supervisor and group office as soon as possible.

5.0 RECORDS

The FTL submits the following records generated by this procedure to the Records Processing Facility:

- Completed COC form.

6.0 ATTACHMENT

Attachment 1: *Produce Sampling Hazard Review*

ATTACHMENT 1 – PRODUCE SAMPLING HAZARD REVIEW

Work Tasks/Steps	Hazards, Concerns, and Potential Accidents; Likelihood/Severity	Controls, Preventive Measures (e.g., safety equipment, administrative controls, etc.)	Hazard Level (from IMP 300-00-00, Hazard Grading Matrix)
Travel to sampling sites in the field	Various field and outdoor hazards such as seasonal heat and cold extremes, wind, sun exposure, lightning, insects, reptiles, slips, falls, brush remote/moderate = low	Train to General Field Safety Self Study (ENV-DO-SOP-100 0; UTrain Course 40531). Wear PPE that includes pants, long-sleeve shirt, safety glasses, field shoes, and gloves.	Low
Use hands as needed to collect produce samples according to steps for sample collection in Section 4.2, Produce Sampling Steps.	Cutting fingers, poking eyes with vegetation Occasional /moderate = low	Use care when collecting and wear protective gloves and eyeglasses.	Low

Wastes or Residual Materials

Sample materials will be disposed by analytical laboratory.

Los Alamos
NATIONAL LABORATORY
EST. 1943

Environment, Safety and Health

Electronic Public Reading Room - Posting of Controlled Procedures

Operations Integration Office Management Approval:

Print Name	Signature	Date
Ellena Martinez	Ellena Martinez	3/4/16

Derivative Classifier:

☐ OUO ☐ UCNI ☒ Unclassified ☐ Classified

Print Name	Signature	Date
Larry W. Maassen	Larry Maassen	3/4/16

List of Controlled Documents:

Procedure No.	Title/Description
Air Monitoring (ENV)	
ENV-ES-TPP-003	Technical Project Plan for the Neighborhood Environmental Watch Network (NEWNET)
ENV-ES-TPP-007	Technical Project Plan for the Direct Penetrating Radiation Monitoring Network (DPRNET)
Data Validation (ADESH)	
OIO-TP-5161	Routine Validation of Volatile Organic Compound Analytical Data
OIO-TP-5162	Routine Validation of Semivolatile Organic Compound Analytical Data
OIO-TP-5163	Routine Validation of Organochlorine Pesticide and Polychlorinated Biphenyl Analytical Data
OIO-TP-5165	Routine Validation of Metals Analytical Data
General Field Work	
OIO-TP-222	Shipping/Receiving of Environmental Samples by the Sample Management Office (SMO)
OIO-QP-219	Sample Control and Field Documentation
Soil, Foodstuffs, and Biota Sampling (ENV)	
ENV-ES-TPP-002	Technical Project Plan for Biota Dose Assessment
ENV-ES-TP-003	Collection of Soil and Vegetation Samples for the Environmental Surveillance Program
ENV-ES-TP-004	Produce Sampling
ENV-ES-TP-007	Game Animal Sampling
ENV-ES-TP-006	Sampling Soil and Vegetation at Facility Sites
SOP-5247	Collection of Benthic Macroinvertebrates in the Rio Grande
ENV-ES-TP-008	Collection of Crawfish in the Rio Grande
Well Drilling, Construction, Development, Maintenance, and Abandonment	
ENV-RCRA-QP-010	Land Application of Groundwater