DEC 2 1994 (21)
Sta. 21

# ENGINEERING DATA TRANSMITTAL

Page 1 of 1

1. EDT 118523

2. To: (Receiving Organization)
G. R. Hanson T4-03
Solid Waste Disposal

3. From: (Originating Organization)
Engineered Process Applications (EPA) L5-31

4. Related EDT No:

5. Proj/Prog/Dept/Div:

6. Cog/Proj Engr: W.O. Greenhalgh

7. Purchase Order No:

8. Originator Remarks:
This EDT contains a revised Low-Level Waste Certification Plan for the EPA organization covering 377, 335, 324, 306, and 105DR Facilities, and any other facility or activity directed by the EPA organization.

9. Equip/Component No:

10. System/Bldg/Facility:

11. Receiver Remarks:

12. Major Assm Dwg No:

13. Permit/Permit Application No.

14. Required Response Date:

15. DATA TRANSMITTED

| (A) Item No. | (B) Document/Drawing No. | (C) Sheet No. | (D) Rev No. | (E) Title or Description of Data Transmitted | (F) Impact Level | (G) Reason for Transmittal | (H) Originator Disposition | (I) Receiver Disposition |
|---|---|---|---|---|---|---|---|---|
| 1 | ~~N/A~~ KN WHC-SD-EN-EV-030 | - | 1 | Low-Level Waste Certification Plan ~~(WHC-SD-EN-EV-011, Rev. 1)~~ (WHC-SD-EN-EV-030, Rev.0) | ESQ WOG | 1 | 1 | |

16. KEY

| Impact Level (F) | Reason for Transmittal (G) | Disposition (H) & (I) |
|---|---|---|
| 1, 2, 3, or 4 see MRP 5.43 and EP-1.7 | 1. Approval 2. Release 3. Information 4. Review 5. Post-Review 6. Dist (Receipt Acknow. Required) | 1. Approved 2. Approved w/comment 3. Disapproved w/comment 4. Reviewed no/comment 5. Reviewed w/comment 6. Receipt acknowledged |

17. SIGNATURE/DISTRIBUTION
(See Impact Level for required signatures)

| (G) Reason | (H) Disp | (J) Name | (K) Signature | (L) Date | (M) MSIN | (J) Name | (K) Signature | (L) Date | (M) MSIN | (G) Reason | (H) Disp |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,2 | | Cog./Proj. Eng | W.O. Greenhalgh | 10/13/94 | | (OSTI distr. 2 copies w/att L8-07) | | | | | |
| 1,2 | | Cog./Proj. Eng. Mgr. | J.A. Hunter | 11/4/94 | | | | | | | |
| 1,2 | 1 | QA | Mark McGhan | 11-16-94 | L6-35 | | | | | | |
| 1,2 | 1 | Safety | (MK Ullah) | 11-16-94 | | | | | | | |
| 1,2 | 1 | Environmental | ~~ERIC GRUNGER~~ | 11/21/94 | | | | | | | |

18. Signature of EDT Originator — Date 11/14/94

19. Authorized Representative for Receiving Organization — Date

20. Cognizant/Project Engineer's Manager — Date

21. DOE APPROVAL (if required)
Ltr No. _____
☐ Approved
☐ Approved w/comments
☐ Disapproved w/comments

BD-7400-172 (2/89)

# RELEASE AUTHORIZATION

| | |
|---|---|
| **Document Number:** | WHC-SD-EN-EV-030, REV.0 |
| **Document Title:** | Low-Level Waste Certification Plan Engineered Process Applications (EPA) Organization |
| **Release Date:** | December 1, 1994 |

**This document was reviewed following the procedures described in WHC-CM-3-4 and is:**

**APPROVED FOR PUBLIC RELEASE**

**WHC Information Release Administration Specialist:**

M.N. Boston 12/1/94

M.N. Boston



A-6001-400.2 (09/94) WEF256

KN

# SUPPORTING DOCUMENT

1. Total Pages 16

| 2. Title | 3. Number | 4. Rev No. |
|---|---|---|
| Low-Level Waste Certification Plan | WHC-SD-EN-EV-030 | 0 |

| 5. Key Words | 6. Author |
|---|---|
| Certification Plan, Low-Level Waste, Mixed Waste | Name: W. O. Greenhalph<br>Signature<br>KN BA700<br>Organization/Charge Code J8A70 |

7. Abstract

8. RELEASE STAMP

OFFICIAL RELEASE BY WHC
DATE DEC 2 1994
Sta. 21

# Low-Level Waste Certification Plan

## Engineered Process Applications (EPA) Organization

**Westinghouse Hanford Company**
Richland, WA

## Table of Contents

Low-Level Waste Certification Plan
for the Engineered Process Application Organization

# 1.0 INTRODUCTION

## 1.1 PURPOSE

This plan describes the organization and methodology for the certification of solid low-level waste (LLW) and mixed-waste (MW) generated at any of the facilities or major work activities of the Engineered Process Application (EPA) organization. The primary LLW and MW waste generating facility operated by EPA is the 377 Building. This plan does not cover the handling of hazardous or non-regulated waste, though they are mentioned at times for completeness.

## 1.2 SCOPE

This waste certification plan applies to waste that is generated in EPA operated facilities, or is primarily the responsibility of the EPA organization. The scope is consistent with requirements found in the latest version of the Hanford Site Solid Waste Acceptance Criteria (Doc. WHC-EP-0063-4).

## 1.3 DESCRIPTION OF EPA FACILITIES

The EPA laboratory and operating facilities include 377 Facility, 105-DR Large Sodium Fire Facility, 306 Waste Technology Testing Laboratory, 324-C Annex, and the 335 Building.

### 1.3.1 The 377 Facility

The 377 Facility is presently the primary LLW and MW generator. It is located on the west side of the 300 Area near the 305 Building. The building was originally constructed by the Pacific Northwest Laboratory (PNL) for the examination of a failed nuclear power plant steam generator. The project was completed in 1987 and the building was essentially untouched until Westinghouse Hanford Company (WHC) assumed operations in 1990. The building has been partly decontaminated, including the change out of all building high-efficiency particulate air (HEPA) filters. There remained some fixed surface contamination on walls and floors, and undoubtedly some air duct activity.

The 377 Facility is equipped to function as a "hot" laboratory for the physical characterization of clean-up samples including low activity radioactive and mixed wastes materials. It is a low hazard radiological facility that performs conductivity measurements, waste container sampling, radioactive material property measurements, waste characterization studies, waste treatment tests, and radioactive instrumentation tests.

Figure 1 shows the floor plan of the 377 Building. It is divided into four distinct areas: the vestibule and change rooms, the testing laboratory, the tower, and the truck load-out room. The tower portion of the building is used to store incoming and outgoing samples, used protective clothing, compactible and non-compactible waste. In addition, the <90-day mixed waste storage pad is located on the first floor of the tower portion. Outside of the Building to the east is a concrete pad roped off area presently containing boxes and drum containers of radioactive waste. To the north of the pad and northeast of the building are two mobile trailers used for records storage and an office support area for 377 building personnel.

### 1.3.2 105-DR Large Sodium Fire Facility

The 105-DR Large Sodium Fire Facility is located in the exhaust fan section of the 105-DR reactor. The support and storage areas of the facility have been cleaned and restored to their original condition. However, the active test site which is contaminated primarily with sodium carbonate has not been cleaned and is awaiting approval of the closure plan by the State of Washington. Once the closure plan is approved, then the testing part of the Large Sodium Fire Facility can be cleaned and restored to its former condition. Waste residues will be primarily sodium carbonate a Washington State (non-RCRA) hazardous waste. Some of the sodium carbonate residue might be radioactively contaminated or just be non-releasable and therefore classified as a mixed waste. Also, there could potentially be some LLW waste generated during the decontamination work.

### 1.3.3 The 306-E Waste Technology Testing Laboratory

The 306-E Waste Technology Testing Laboratory (Lab 174) is located in the northeast corner of the building. The laboratory is used for waste and/or waste form testing and development. The laboratory is free of radioactive materials, but the building is classified as a radiological control zone. Historically, various parts of the building contained radioactive materials and could conceivably have residual contamination. The laboratory typically generates hazardous waste only, but if the waste cannot be released it would become LLW waste or mixed waste. No generation of LLW waste is expected at the 306 laboratory. A "Satellite" or "less than 90-Day Storage Pad," will have to be set up in 306-E and/or other appropriate buildings if either mixed waste or hazardous waste is generated during any EPA operations or activities.

### 1.3.4 The 324 Annex

The 324 Annex is located on the west side of the 324 Building. The Annex originally housed a large tank of lithium metal. The lithium in the tank has since been drained into steel drums and sold to an off-site vendor (successful recycle program). The tank and the rest of the lithium handling equipment is to be removed in the near future to restore the facility to its original condition. The generation of some hazardous waste is expected. The generation of LLW or mixed waste is not expected.

### 1.3.5 The 335 Building

The 335 Facility is a building exempt from radiological control (no radioactivity). The contained sodium and sodium-potassium (NaK) loops are hazardous (water reactive) materials. The building is on a list of sodium metal facilities/buildings to be decontaminated. This clean-up job will generate hazardous waste, but no LLW or mixed waste.

## 1.4 FACILITY WASTE MANAGEMENT STRATEGY

The EPA Organization will manage wastes in compliance with the U.S. Department of Energy (DOE) Order 5820.2A, Radioactive Waste Management (DOE 1988), as implemented by the current revision of WHC-EP-0063, "Hanford Site Solid Waste Acceptance Criteria" and WHC-CM-7-5, "Environmental Compliance Manual." In addition, all wastes are managed in compliance with the applicable state and federal regulations.

Waste minimization strategy is based primarily on source reduction and material recycle. Laboratory procedures have been written to best utilize these principles. Chemical and essential materials inventories in waste generating operations will be maintained as low as reasonably practical by careful and restricted procurement; excess materials will be eliminated where possible by recycle or reuse. Standard practice for plans to use new chemicals include obtaining an MSDS sheet, and completing a pre-designation process prior to procurement. If hazardous, procurement requires the approval (signature) of Quality Assurance in addition to that of the Group Manager. In addition EPA guidelines call for a review of the procurement by the Hazardous Material Coordinator (HMC). The HMC may approve it, recommend a smaller quantity, recommend a substitute product, or discourage Product procurement. Substitution shall be utilized to the maximum possible to minimize generation of hazardous or mixed waste, also quantities shall be limited to that amount essential for operation.

Test samples from Building 377 are planned to be returned to the generator, if still usable and representative. Operable unit soil samples are generally disposed of according to the Record of Decision for that specific site.

All EPA processes, operations, or activities which will generate a waste stream will be identified prior to initiation of testing. These waste streams will be segregated at the point of generation. This will include separate collection containers in hoods and laboratory rooms for compactible and non-compactible LLW and mixed waste.

Each waste container will be required to have a detailed and accurate waste inventory sheet (WIS) and Package Identification Number (PIN) for traceability. The WIS sheet shall be placed in a protective plastic cover and attached to the waste container, the PIN number shall be marked in permanent contrasting color on both the top and sides of the container. A copy of the WIS sheet with PIN number shall be forwarded to EPA waste record files. (HMC)

# 2.0 ORGANIZATION

## 2.1 ENGINEERED PROCESS APPLICATIONS ORGANIZATION

The Engineered Process Applications (EPA) organization is shown in Figure 2. It is part of the Engineering Testing & Technology Projects organization of the Westinghouse Hanford Company.

## 2.2 DUTIES AND RESPONSIBILITIES

### 2.2.1 EPA Manager

The EPA Manager is responsible for the following:

- Ensure that all employees receive adequate training
- Maintain current training records
- Ensure that all personnel follow the appropriate procedures

### 2.2.2 Building Administrator

The Building Administrator (BA) is responsible for the following:

- Ensure that all EPA facilities are secure when operating personnel are not present
- Monitor maintenance personnel when they are performing maintenance activities
- Provide safe and operable facilities for the required work

### 2.2.3 Hazardous Material Coordinator

The Hazardous Material Coordinator (HMC) is responsible for the following:

- Retaining records of waste shipments and documentation as required by state and federal regulations.
- Issue Package Identification Numbers (PIN) for waste containers
- Maintain waste handling records and retrieve them as required for waste audits, material discrepancies, and waste inventory questions.

### 2.2.4 Waste Shippers

Waste Shippers for regulated materials are responsible for the following:

- Follow all applicable waste handling procedures
- Label and ship all regulated waste containers (LLW & MW)
- Ensure all waste containers are packaged properly
- Complete applicable shipping papers or other appropriate documents
- Request and review Storage/Disposal Approval Records (SDAR)
- Develop and update regulated waste handling and shipping procedures

- o Periodically check laboratories with waste handling operations and waste storage facilities, pads, or satellite areas.
- o Procure materials and services used for waste handling or shipping
- o Schedule traffic and/or any other inspections required prior to shipping

2.2.5 Waste Generators

Waste generators including laboratory operators, technicians, engineers, or other workers shall be responsible for the following:

- o Follow all applicable waste handling procedures
- o Inspect and sign-off on all waste containers prior to use
- o Complete a Waste Inventory Sheet (WIS) or part thereof for all waste or part thereof that is generated and placed in a waste container (see Figure 3)
- o Inspect waste on a weekly basis if it is a hazardous or mixed waste
- o Notify HMC and/or shippers when a waste container becomes full or reaches its regulated limit

2.3 PRINCIPAL INTERFACES

2.3.1 Waste Designation

WHC Acceptance Services (AS) accepts Waste Storage/Disposal Requests (WSDR) and processes them. AS have personnel that are trained and certified to designate waste according to the Washington State Code of regulations (WAC). The AS Group processes the WSDR form, designates the included waste, and issues an approved Storage/Disposal Approval Record (SDAR). The SDAR provides details on how the waste is to be handled, packaged, and labeled for shipment to either storage or disposal facilities, and to which facility it shall be sent.

2.3.2 Container Exposures

The Occupational Health and Safety Group is responsible for determining containers exposures. Health Physics Technicians (HPT) conducts waste surveys and determines the surface dose exposure for waste containers packed and ready for shipment to storage or disposal. Containers with surface dose rates that exceed 200 mrem/hr have to be handled remotely and are termed remote-handled waste. (EPA waste is typically contact-handled or non-remote)

2.3.3 Waste Disposal or Storage

Solid Waste Operations receive LLW or mixed-waste for burial or storage. The LLW category 1 (low activity) is placed in a near surface burial trench and covered for disposal. The mixed waste is stored in one of the facilities in the Central Waste Complex.

### 2.3.4 Waste Transport

The Traffic Group of transportation provides support on U.S. Department of Transportation (DOT) public highway shipments. All waste shipments made from the 300 Area must be inspected and approved for shipment prior to scheduling the shipment. Waste packages must meet DOT and the container SDAR requirements.

### 2.3.5 Waste Characterization

Waste characterization is based on process knowledge and sample analysis. Most 377 Facility test samples come with characterization data already with them. Supplementary knowledge if required is obtained by additional laboratory analyses at a process analytical laboratory facility (222-S, 325, etc.).

## 3.0 CERTIFICATION METHODOLOGY

### 3.1 CERTIFICATION PROCESS DESCRIPTION

### 3.1.1 Requirements

This plan for certification of LLW and MW is designed to assure that all waste generated by the EPA organization meets the waste acceptance criteria for the Hanford Site 200 Area storage and disposal facilities. This criteria is established in the latest version of WHC-EP-0063, "Hanford Site Solid Waste Acceptance Criteria" (Willis, 1993). The certification methodology will address the following areas.

### 3.1.2 Pollution Prevention

Pollution Prevention (Waste Minimization) methodology for the Hanford Site is described in DOE/RL-91-31, Rev. 1 document. Using this document as a base, WHC has drafted its own Company wide plan WHC-EP-0496, Rev. 1, entitled, "Westinghouse Hanford Company Pollution Prevention Program Implementation Plan". The EPA organization shall use the methodologies of these two plans to set new waste pollution prevention goals and to write new waste pollution procedures. In the mean time, the EPA will continue to follow the waste minimization plans and procedures in place for the 377 Facility. Waste minimization plans are covered in Document WHC-SD-EN-EV-010, Rev.0, entitled, "Waste Minimization Plan for Geotechnical Engineering". Waste minimization procedures are included with other waste handling procedures in the "Geotechnical Engineering Manual", Doc. WHC-IP-0635, Procedures GE-05 and GE-07.

Emphasis is being placed on source reduction. Procurement of chemicals or other potentially hazardous materials is severely restricted. Recycle or reuse of chemicals or materials to reduce the present EPA inventory is pursued whenever possible.

### 3.1.3 Waste Segregation

Waste segregation activities are required in all EPA facilities and operations where waste is generated. Operators, technicians, and workers are trained in on-the-job training to segregate waste into separate designated categories: non-regulated, hazardous (HW), radioactive (LLW), and mixed radioactive-hazardous (MW). Each type of waste is placed in its own labeled container, and is kept separate from the other wastes. This in itself is a part of pollution prevention covered in Section 3.2.2 since it minimizes cross-contamination preventing LLW or HW from becoming MW or non-regulated from becoming radioactive or hazardous.

Questions on waste segregation within the EPA Group can be addressed to the HMC or waste shippers. These people have received training on waste designation, but are not certified for making designations. They can help make preliminary designations, official designations are made by AS people as described in Section 2.3.1.

### 3.1.4 Waste Characterization

Every material designated as a waste must be characterized unless it is well defined from documented process knowledge. Characterization shall be accomplished using the following general characterization outline:

Radionuclide Content: Direct counting techniques shall be used to determine radionuclide contents.

- Liquids - Survey for alpha, beta, or gamma radiation.
  - Submit liquid sample for direct counting.
- Solids - Survey for alpha, beta, or gamma radiation.
  - Submit solids for well or drum counting assays.
  - Sample and count directly if light beta is present.

Radioactive Decay Corrections: Radioactive decay corrections can be made by using the following equation or its anti-log equivalent.

$\ln[A/Ao] = -kt$, where A is present activity, Ao is the original activity at time "t", and "k" is the constant 0.693/t(half-life).

Radioactive isotope characterization is accomplished primarily through the use of sample analysis coupled with nondestructive assay. EPA operations will use process knowledge, confirmed by existing and future sample analysis. The acceptance criteria for samples at the 377 Building are set at < 5000 dpm/50cm2 alpha and <25 mrem/h beta/gamma. Samples are returned to the sample generator after the analyses are performed. Because of this, it is expected that most wastes generated in the 377 facility will only be suspect or lightly contaminated. The non-destructive assay is accomplished through the use of

gamma/neutron energy analysis, and the services are performed by the Pacific Northwest Laboratories.

Hazardous Materials (MW): Wastes containing hazardous materials for which a Material Safety Data Sheet is not available are sampled, and analyzed for the following chemical characteristics.

- o Liquids - pH, organic content, halide content, anion content, X-Ray fluoresence (XRF) and/or mass spectrograph for general chemical species, and analyze for Toxic Characteristic Leach Procedure (TCLP) analytes if they are potentially present or if their absence has not been previously established.

- o Solids - organic content, halide content, chemical species by X-Ray diffraction (XRD), XRF, or mass Spectrograph and analyze for TCLP analytes if potentially present or absence not established.

3.1.5 Designation/Segregation

Once a material is identified as a waste or a potential waste, the material is labeled and kept separate from other materials. Wastes are given a preliminary designation and are segregated as non-regulated, radioactive, hazardous, or mixed radioactive-hazardous (MW). Once a material is identified as a waste the MSDS sheet, characterization data and/or process knowledge data is submitted along with a WSDR form to AS for designation. The waste will be designated as to type of waste (non-regulated, LLW, HW, or MW) and instructions for its handling and packaging for shipment to storage or disposal shall be included.

Most waste handling requiring designation/segregation is done in the 377 Building. Samples and sample wastes generated in the 377 Facility will be separated and segregated in lots (well number, operable unit, etc.). Other 377 wastes that will be generated are step-off pad wastes, waste from maintenance activities, HEPA filters, and wastes from special studies that the 377 Facility may perform for a customer. These wastes will be designated and segregated into radioactive compactible, non-compactible, and mixed waste. This will be accomplished by providing multiple waste collection containers in areas where they are being generated and by training personnel to use them properly. Preliminary designations are performed by trained personnel directed or over-viewed by the HMC or shippers, which have Washington Acceptance Code (WAC) type designation training. (See Section 3.1.3)

3.1.6 Waste Packaging

In the 300 Area, all waste packaging must meet the requirements of 49 Code of Federal Regulations (CFR) parts 100 to 177, WHC-EP-0063-4 or the latest revision, and the approved Storage Disposal/Approval Record (SDAR).

The waste is packaged according to Procedures GE-05 and GE-07 included in Manual WHC-IP-0635.

### 3.1.7 Waste Traceability

Waste Traceability is primarily accomplished by the use of container PIN numbers, inventory sheets, and regulatory required documentation. A PIN number is assigned to each waste container prior to filling. An inventory sheet (see Figure 3) with PIN number is attached to each container. Regulatory documentation follows the container designation to final disposal or storage.

### 3.1.8 Quality Assurance

Quality assurance is based upon the principles listed in ASME NQA-1 entitled "Quality Assurance Program Requirements for Nuclear Facilities" (1989), and the WHC "Quality Assurance Manual", WHC-CM-4-2. Quality Assurance Elements include (where applicable) organization; quality assurance; design control; procurement document control; instructions, procedures, and drawings; document control, control of purchased items and services; identification and control of items; control of processes; inspection; test control; control of measuring and test equipment; handling, storage, and shipping; inspection, test, and operating status; control of non-conforming items; corrective action; quality assurance records, and audits.

### 3.1.9 Training

All EPA personnel receive formal and on-the-job training for their respective responsibilities. The training provided is based upon WHC manual WHC-CM-2-15, entitled "Training Administration Manual". Formal training is scheduled and carried-out through the WHC Training Center. A record for each EPA employee is kept on a computer data base, by the EPA secretary, and it is up-dated periodically as training is completed. The secretary also keeps a hard copy of the training including On-The-Job training. The On-The-Job EPA training for waste handling is prepared and presented by the HMC, or Waste Shippers all of which are trained in waste handling and shipping procedures. These are carried out under the direction of EPA management.

Personnel training specifically for 377 Building is defined in WHC-IP-0635, entitled "Geotechnical Engineering Manual", Procedure GE-04. All personnel assigned to work in 377 shall have the above facility specific training. Personnel also are trained to follow Procedure GEL-10 (WHC-IP-0635) which provides for the inspection of <90-day accumulation areas.

The EPA classified "General Worker" has the following training requirements: (1) Hanford General Employee Training (HGET) for all employees, (2) Hazardous Communication/Hazardous Waste, (3) Facility specific training, (4) Core Waste Management, (5) Radiation Worker (I) if the employee works in the vicinity of radiation, but not directly with contaminated material, or Radiation Worker (II) for the employee that works directly with radioactive materials. Workers at the 377 Building are required to have Rad. Worker (II)

training. Shippers and the HMC (also a shipper) have to take all of the above courses plus shippers training, waste designation, and at least 24 hr. RCRA site workers training.

## 3.2 HANDLING PROCESS WASTE

### 3.2.1 Compactible Waste

Compactible LLW consists primarily of paper, cloth, rubber, and soft plastic. Most of EPA's compactible waste comes from step-off pads. Compactible waste can also include sample packaging that is not reused, filter papers, plastic pipettes and pipette tips, etc. Waste will be collected in Department of Transportation (DOT) approved containers which have appropriate liners.

The radioactive material content of compactible waste will be a composite of the radionuclides present based upon process knowledge and the analytical data from the samples received. Most of this waste will only slightly contaminated. When this is the situation, the detection limit of the survey equipment will be used to determine the curie values to be reported. Waste that is more than slightly contaminated will be characterized as described in Section 3.2.4 on Waste Characterization.

### 3.2.2 Non-Compactible Waste

Non-compactible waste is waste that cannot be compacted such as laboratory glassware, rigid plastic, wood, and metal. Most of this waste is generated by maintenance activities. These wastes will be collected and shipped in DOT approved containers. Packaging can be done directly following the applicable SDAR instructions. Non-compactible waste is segregated from other waste streams at the point of generation.

The radioactive material content of non-compactible waste will be a composite of the radionuclides that would most likely be present based upon process knowledge and the analytical data from the samples received recently in that part of the facility from which the maintenance waste was generated. It is believed that most of this waste would be only slightly contaminated and the curie value is then estimated by the detection limit of the survey equipment. Where possible, this waste is drum packaged and counted by PNL in their portable drum assay equipment and the radioisotopes determined by that assay are reported along with soft beta radionuclides (tritium, carbon-14, etc.) that would not be detected by the drum assay.

### 3.2.3 Soil Testing Wastes

Soil testing wastes are residue materials generated during routine soil analyses. These wastes might include soil, soil samples that are disturbed beyond further usefulness, pH paper, gloves, filter paper, failed equipment or containers, etc. All soil samples submitted for analysis are accompanied by documentation showing their radionuclide contents. Waste Inventory Sheets for

the soil waste containers are posted with what samples or residues are discarded and the corresponding radionuclide contents.

### 3.2.4 HEPA Filters

The HEPA filter waste is primarily limited to the 377 Building. The HVAC system for the building provides double HEPA filtration of all air leaving the building. The pressure is progressively more negative as one moves toward more potentially contaminated areas (i.e., from the vestibule to the air lock to the laboratory and finally to the tower). There is also HEPA filtration of air exhausted out of the laboratory hoods.

The radioactive material content of the HEPA filters will be a composite of the radionuclides that would most likely be present based on process knowledge and the analytical data from the samples received at the laboratory. The waste will be characterized as described in Section 3.2.4. Process knowledge for portable assay by PNL, and sample analysis if necessary will be used to physically/chemically characterize this waste stream.

The HEPA filters are segregated by generators from hood wastes and room wastes and are collected in their own shipping containers. All HEPA filter waste shall be packaged per the applicable SDAR and shipped out either for burial ground disposal or mixed-waste storage (chemically contaminated HEPA filters).

### 3.2.5 Liquid Scintillation Wastes

Liquid scintillation waste is generated when a low-level radioactive tracer is added to water going through a column packed with "clean" materials. The resulting effluent from the column leach tracer test will be mixed with a scintillation fluid and analyzed by liquid scintillation. The radionuclide content is determined by the liquid scintillation analyzer. The scintillation waste stream is segregated from other waste streams and handled as described in Procedure GEL-24 of Manual WHC-IP-0635.

### 3.2.6 Miscellaneous Suspect or Slightly Contaminated Waste

There are also miscellaneous suspect or slightly contaminated waste items. This waste stream consists of slightly contaminated spent piping, failed or old equipment, scrap materials, metal, wood, and worn out tools having less than 2 nCi/g of alpha emitting radionuclides in the waste matrix. This material cannot be unconditionally released and therefore becomes a LLW waste material.

This waste stream is characterized in accordance with process knowledge of the activities carried out in that specific facility or portion thereof. The contamination on the waste items is detected by HPT surveys. The contamination is considered to be a composite of the radionuclides that would be considered most likely by process knowledge. Where possible this is confirmed by container (drum) assays conducted by PNL. Where that is not

possible, radionuclides are identified by process knowledge and the content estimated from the curie detection levels measured by the survey instruments. The waste stream is segregated from other waste streams at the point of generation. The waste is handled, packaged, and shipped as LLW per applicable SDAR.

### 3.2.7 Unexpected Waste

Unexpected waste is that waste material that is not anticipated, is unforseen, or is infrequently produced. Examples of this type of waste is a large piece of failed equipment or similar items generated outside the normal laboratory operations. Another type of unforseen waste is mixed waste. The laboratory under typically normal operations generates LLW but not mixed waste. Any mixed waste will be considered unexpected waste. It will be segregated at the point of generation as a mixed waste and handled accordingly. Mixed waste and LLW waste are often packaged differently, typically a mixed waste liquid SDAR requires a 90 mil liner for drums, etc. The unexpected waste whether failed equipment, mixed waste or whatever, will have to be handled on an individual basis and packed per SDAR specific for that waste.

A sample of the waste will be taken and analyzed if it is a liquid waste. If the waste is a solid, non-destructive assay methods will be used to characterize it where possible. If not possible, it will be sampled and analyzed. If it is large equipment that cannot be non-destructively assayed, process knowledge and surface sampling, etc combined with laboratory analysis will be used to characterize radionuclide and chemical contents.

### 3.2.8 Waste Handling, Packaging, and Shipping Operations

Waste that falls into a category that is already covered by a procedure in Manual WHC-IP-0635 shall be handled accordingly. Waste that does not fit into a defined waste category shall be handled through the applicable SDAR per the latest revision of the WHC-EP-0063 document.

## 4.0 REFERENCES

ASME, 1989, "Quality Assurance Program Requirements for Nuclear Facilities", NQA-1-1989, American Society of Mechanical Engineers, New York, New York.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 USC 9601 et seq.

DOE, 1988, Radioactive Waste Management, DOE Order 5820.2A, U.S. Department of Energy, Washington, D.C.

Resource Conservation and Recovery Act of 1976, 42 USC 6901 et seq.

Willis, N. P., 1993, "Hanford Site Solid Waste Acceptance Criteria", WHC-EP-0063-4, Westinghouse Hanford Company, Richland, Washington.

WHC, 1991, "Quality Assurance Plan for the Geotechnical Engineering Laboratory", WHC-SD-EN-QAPP-003, Westinghouse Hanford Company, Richland, Washington.

WHC, 1992, "Waste Minimization Plan for the Geotechnical Engineering Laboratory", WHC-SD-EN-EV-010.

WHC, 1991, "Quality Assurance Manual", WHC-CM-4-2, Westinghouse Hanford Company, Richland, Washington.

WHC-IP-0635, "Geotechnical Engineering Procedure Manual", Westinghouse Hanford Company, Richland, Washington.