ORNL/TM-13288
Revision 4

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OAK RIDGE NATIONAL LABORATORY

LOCKHEED MARTIN

WASTE CERTIFICATION PROGRAM PLAN

for

OAK RIDGE NATIONAL LABORATORY

December 1998

Prepared by the
ORNL Waste Certification Team

LOCKHEED MARTIN ENERGY RESEARCH CORPORATION
Oak Ridge, Tennessee

Prepared for the U.S. Department of Energy
under U.S. Government contract DE-AC05-96OR22464

MANAGED AND OPERATED BY
LOCKHEED MARTIN ENERGY RESEARCH CORPORATION
FOR THE UNITED STATES
DEPARTMENT OF ENERGY

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December 1998

T.E. Myrick, Director
Office of Environmental Management Programs

Date: 12/4/98

J.H. Swanks, Associate Director
Operations, Environment, Safety, and Health

Date: 12/8/98

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FIGURES

ACRONYMS AND ABBREVIATIONS

ACW	alpha-contaminated waste
CFR	Code of Federal Regulations
DOE	U.S. Department of Energy
GI	Generator Interface
GIE	Generator Interface Equivalent
L_D	detection limit
LMTPM	Lockheed Martin Transportation and Packaging Management
NDA	nondestructive assay
NDE	nondestructive examination
NRA	no-radioactivity-added
OEMP	Office of Environmental Management Programs
OEP	Office of Environmental Protection
OESH	Operations, Environment, Safety, and Health
ORNL	Oak Ridge National Laboratory
PCB	polychlorinated biphenyls
PK	process knowledge
QA	quality assurance
RCRA	Resource Conservation and Recovery Act
RFD	Request for Disposal - [generic term for current form set used to document waste information (e.g., 2109 form set)]
RMMA	Radioactive Materials Management Areas
SLLW	solid low-level waste
TRU	transuranic waste
TSCA	Toxic Substances Control Act
TSDF	treatment, storage, and/or disposal facilities
WAC	Waste Acceptance Criteria
WCO	Waste Certification Official
WCP	Waste Certification Program
WCT	Waste Certification Team
WID	waste item description
WM	Waste Management

ABOUT THIS REVISION

The Waste Management Operations Division staff will be transferred to Bechtel Jacobs Company, LLC between January and April 1999. ORNL is forming an internal organization to conduct those waste management functions that are required to ensure the requirements of this plan are met. The ORNL Waste Certification Program Plan will be revised (Revision 5) to reflect the roles and responsibilities of this new organization. Therefore, Revision 4 is an interim plan that reflects the waste management organization in existence on its date of issue.

1. PURPOSE

This document defines the waste certification program (WCP) developed and implemented at Oak Ridge National Laboratory (ORNL). The document describes the program structure, logic, and methodology for certification of ORNL wastes. The purpose of the WCP is to provide assurance that wastes are properly characterized and that the Waste Acceptance Criteria (WAC) for receiving facilities are met. The program meets the waste certification requirements outlined in the U. S. Department of Energy (DOE) Order 5820.2A, *Radioactive Waste Management*, in the *DOE Performance Objective for Certification of Non-Radioactive Hazardous Waste* (DOE, February 1995), and ensures that 40 Code of Federal Regulations (CFR) documentation requirements for waste characterization are met for mixed (both radioactive and hazardous) and hazardous [including polychlorinated biphenyls (PCB)] waste. Program activities are conducted according to ORNL Level I document requirements.

Requirements for managing radioactive and mixed wastes are established in DOE Order 5820.2A. As part of this Order, heads of DOE field organizations are assigned the authority to establish waste management requirements for waste-receiving facilities under their jurisdiction. The development of WACs is one of the requirements specified by the Order for appropriate management of radioactive and mixed wastes generated by DOE operations. The Order also specifies that each generator of waste shall implement a low-level and mixed WCP to provide assurance that the WACs of the receiving facilities are met. Generators of waste and Waste Management (WM) are each responsible for their actions in ensuring compliance with the receiving facility WAC.

In addition to the DOE Order requirement, DOE has mandated that no mixed wastes be shipped off-site to a facility unless it is licensed for receipt of the radioactive component of the waste. As a result, DOE sites are required to implement a program to ensure that (1) DOE activities added no measurable radioactivity, within statistical limits, to hazardous waste and (2) hazardous waste meets the DOE Order 5400.5 surface contamination guidelines. These requirements are described in the *Performance Objective for Certification of Non-Radioactive Hazardous Waste* (DOE, February 1995). The no-radioactivity-added (NRA) process described in this WCP Plan meets these requirements. Effective December 30, 1997, the NRA process described in this WCP Plan replaced ORNL/TM-13189, *Oak Ridge National Laboratory Program Plan for Certification of Nonradioactive Waste* and ORNL-WM-002, *Certification of Nonradioactive Hazardous Waste – ORNL*.

Finally, the regulations implemented under the Resource Conservation and Recovery Act (RCRA) and the Toxic Substances Control Act (TSCA) require accurate characterization of wastes such that development of a WCP for hazardous and toxic wastes is a responsible management practice.

2. SCOPE AND LIMITATIONS

ORNL waste types covered under this program are solid low-level waste (SLLW); transuranic waste (TRU), including TRU mixed and alpha-contaminated waste (ACW); hazardous waste, including both RCRA hazardous waste (40 CFR 261–268) and PCB waste (40 CFR 761); and mixed waste. Requirements for management of these wastes have been incorporated into four ORNL WACs. The three ORNL WACs addressed by this program plan are SLLW WAC (WM-SWO-505), TRU WAC (WM-SWO-506), and hazardous/mixed WAC (WM-SWO-404). NRA determination requirements apply to hazardous and PCB wastes destined for commercial treatment, storage, or disposal that are not licensed to handle radioactivity. Wastes not included in the program are sanitary, industrial, storm water, liquid wastes treated at the Liquid Low-Level and Process Waste treatment facilities (unless they contain RCRA and/or PCB wastes), Coal Yard Runoff Treatment Facility Basin influent and effluent, and air emissions. Recyclable materials that are not hazardous wastes regulated under RCRA, 40 CFR 261–268, are not included in this program. Free release of recyclables (used oil, silver sludge, fluorescent bulbs, etc.) is addressed under ORNL RPP 420. Spent nuclear fuel is not considered waste and is therefore not included in this program.

3. BASIC CERTIFICATION PROGRAM REQUIREMENTS

The DOE Order 5820.2A defines "certified waste" as: "Waste that has been confirmed to comply with disposal site waste acceptance criteria (e.g., the Waste Isolation Pilot Plant Waste Acceptance Criteria for transuranic waste) under an approved certification program." For SLLW, the order further states that: "Generators of waste shall implement a low-level waste certification program to provide assurance that the waste acceptance criteria for any low-level waste treatment, storage, or disposal facility used by the generator are met. Generators and facilities receiving the waste are jointly responsible for assuring compliance with waste acceptance criteria. Generators are financially responsible for actions required due to nonconformance." The order goes on to define the types of records that are to be maintained for DOE SLLW and establishes requirements for implementing waste minimization programs including proper waste segregation. Wastes are to be characterized with sufficient accuracy to permit proper segregation, treatment, storage, and disposal.

ORNL's WCP meets each of the above defined elements leading to waste certification. The process begins with proper waste segregation, includes steps to provide for accurate characterization by the generator, and includes generator and WM-defined steps to ensure that the waste will meet the WAC of the receiving facility (i.e., control points). WM serves as both a control point for generators but is also the control point for initiating waste transfers to receiving facilities. Thus, WM's steps to initiate, complete and verify waste transfers is an essential programmatic step (they identify which waste containers are to be transferred to a given facility).

Figure 1 illustrates the overall process. ORNL generators and ORNL WM staff are jointly responsible for assuring compliance with waste acceptance criteria. The generator is responsible for meeting the requirements of the WAC and WM is responsible for verifying the generator data and packaging. ORNL generators retain the overall responsibility for their wastes until it is programmatically certified and transferred to WM. Required records for wastes are identified in the program and maintained as required.

The *DOE Performance Objective for Certification of Non-Radioactive Hazardous Waste* requires criteria and procedures "aimed at determining if there is a measurable increase in radioactivity above background from DOE operations. This may be done by either process knowledge, surface contamination surveys, sampling and analysis (radioassay), or by a combination of these techniques."

ORNL's WCP meets the NRA requirements identified in the performance objective. NRA determination is made by process knowledge or a combination of process knowledge and radioassay techniques.

State and Federal regulations implemented under RCRA and TSCA mandate accurate characterization of wastes, certification of waste information identified on manifests, certification that a waste minimization program is in place, and RCRA also mandates certifications for land disposal restricted wastes. These mandated certifications are imposed on both the generator as well as treatment, storage, and disposal facilities handling wastes. Required records [waste generation, tracking, and certifications for both generators and treatment, storage, and disposal facilities (TSDFs)] are identified in the regulations.

ORNL's WCP meets each of the above defined elements related to waste certifications based on waste characterization. (The WCP does not address waste minimization requirements; see Section 2.) At ORNL, the WCP provides steps to ensure the basic information needed (i.e., generator waste characterization) to comply with RCRA and TSCA will be collected and maintained and establishes a means to ensure the accuracy of that information (WM control points).

Hence, the DOE Order, Performance Objective, and regulatory standards related to waste certification are being met by the ORNL WCP.

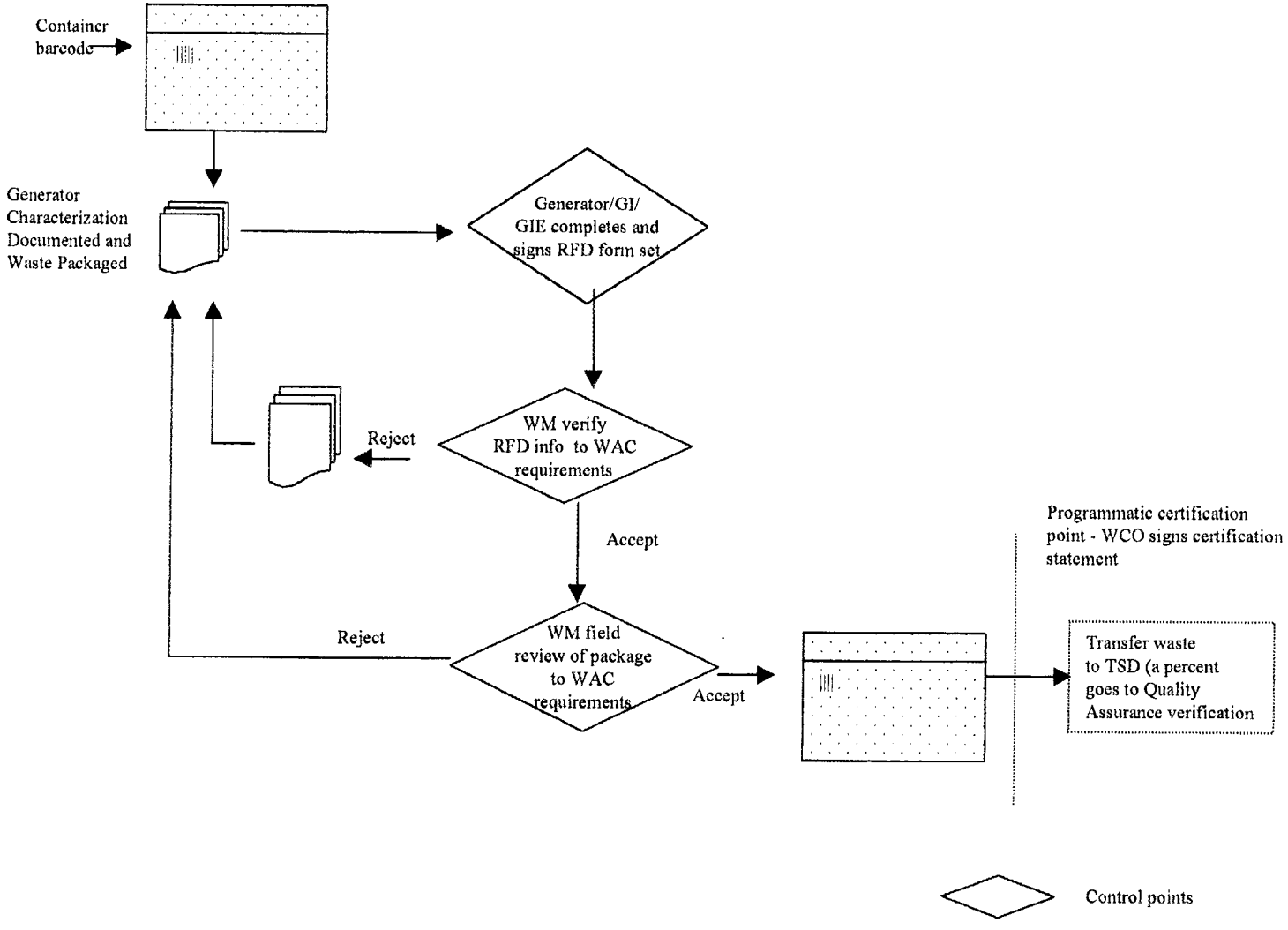

Figure 1. Schematic of Waste Certification Process

4. PROGRAM DESCRIPTION

4.1 PROGRAM ELEMENTS

In keeping with necessary and sufficient or work smart principles, the ORNL WCP is designed to meet applicable DOE orders, the DOE NRA Performance Objective, and regulatory requirements through development or use of existing program documents and Level 1 procedures in place at ORNL. Figure 2 illustrates the elements of this program. The elements include: program drivers (requirements identified in Section 3); the Waste Certification Program Plan (this document); Waste Acceptance Criteria and Implementing Procedures (as described in Section 4.1.1); and Generator Interface (GI) (discussed in Section 4.1.2). This program has been designed to ensure compliance and provide flexibility allowing use of off-site TSDF options where appropriate. For example, where off-site treatment and disposal is a viable option, the off-site facility's WAC for that particular waste type has been incorporated into the appropriate on-site WAC and the corresponding implementing procedure.

4.1.1 Program Documents

Three WACs have been developed to specify requirements that must be met for each waste type. In addition to specifying the necessary characterization, packaging, labeling, and prohibited items that may or may not be accepted at the TSDF, the WACs also define the basis (i.e., sources) for those requirements. The process for obtaining WAC variances is described in the individual WACs. ORNL WACs can be accessed on the Web at the WCP Homepage.

- SLLW WAC (WM-SWO-505)
- TRU WAC (WM-SWO-506)
- Haz/Mixed WAC (WM-SWO-404)

Waste generator implementation procedures for each ORNL WAC have been issued and provide the waste generator with specific instructions to meet the associated WAC. These procedures describe, for example, when and how process knowledge (PK) can be used to characterize a waste. They describe the methods by which generators would properly characterize, segregate, package, and label waste. These procedures can be accessed on the Web at the WCP Homepage.

- SLLW (ORNL-WM-006)
- TRU (ORNL-WM-007)
- Haz/Mixed (ORNL-WM-005)

The following guidance documents have been issued to support generators in meeting characterization requirements and are available on the WEB.

- Radiological Characterization Plan for Solid Low-Level Waste (WM-SWO-507)

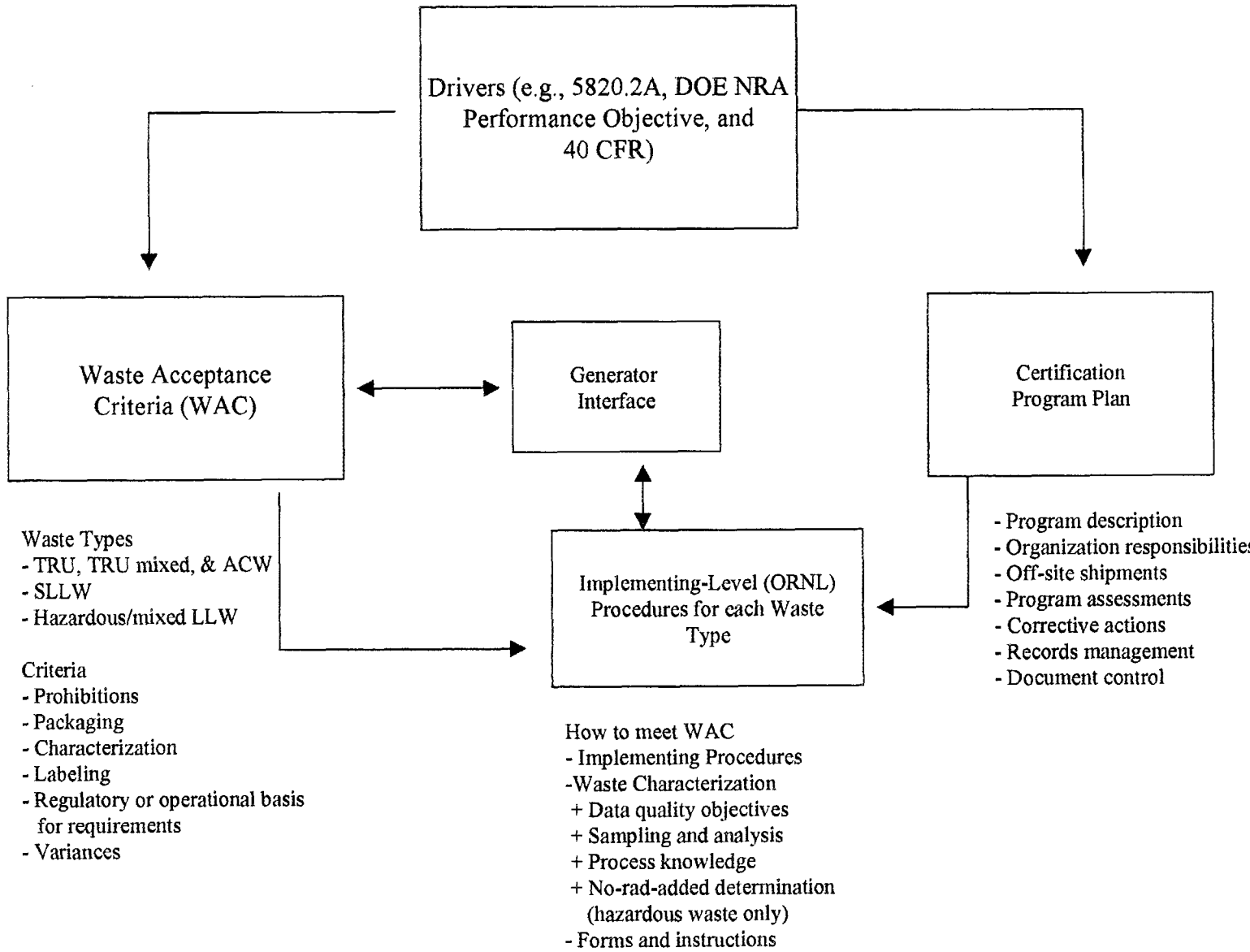

Figure 2. ORNL Waste Certification Program Model

- Guidance for Characterization of Hazardous, PCB, and Low-Level Mixed Waste (WM-SWO-406)
- Guidance on No-Radioactivity-Added Characterization for Hazardous and PCB Waste at ORNL (WM-SWO-407)

All of these documents have been linked to the ORNL WCP home page (http://www.ornl.gov/OQPI/wc_prog.htm).

4.1.2 Generator Interface

The GI element of the WCP provides waste management support to ORNL divisions. This support is provided by means of a core team consisting of waste management experts at generator locations. The team members are either WM staff or assigned divisional staff [referred to as GI equivalents (GIE)]. Roles and responsibilities of the GI/GIE are to provide assistance to the waste generators with waste categorization, characterization, and packaging. Waste streams include radioactive, hazardous, mixed, and TSCA (PCB). Sanitary/industrial waste and recyclables do not require GI/GIE involvement, but may be included in work scope as requested by divisions.. GI/GIE personnel review the waste data package, perform container inspections, and verify waste has been properly characterized, packaged, and accurately documented, by signing the Request for Disposal (RFD) form. GI/GIEs also confirm waste meets the applicable ORNL waste acceptance criteria (WAC). GI/GIE support is required for all waste packages submitted to WM. By utilizing a core team (GI/GIE) of waste management experts, regulatory requirements for accurately characterizing and packaging waste are efficiently satisfied.

GI personnel are assigned to generators on the basis of the level of support required and the types of waste generated. GI personnel, as a minimum, will review the waste characterization methods and sign RFD forms. They are available to provide other required divisional waste management responsibilities such as assisting with characterization, PK documentation requirements, waste stream profile sheets, packaging, completing RFD forms, assisting with or managing waste accumulation areas, assisting with pollution prevention, waste minimization, recycle/reuse, and supporting audits and assessments.

GIEs provide the same types of services as GIs; however, they provide services primarily within their own organization and only within the limits of their training, (ie: solid low level, transuranic, hazardous, mixed, etc.).

Both GIs and GIEs are required to meet specific standards to be eligible for these roles and responsibilities. Qualification and training is required for both GIs and GIEs. GIs are trained on all ORNL waste types, while GIE qualification and training may be limited to the specific waste types they will be handling. New GI/GIE personnel must demonstrate prerequisite qualifications and complete the requisite training. All GIs and GIEs are members of the Generator Interface Group which has mandatory periodic meetings to communicate lessons learned and share information. See Attachment A for GI/GIE qualifications, training requirements and job duties.

ORNL divisions have the option of selecting and training their division staff or requesting that a Waste Management GI personnel serve in the GI function. However, waste generating divisions must utilize a GI or GIE as the waste verifier of waste forms and confirmation (including verification checks) the waste meets the applicable WAC.

4.2 CERTIFICATION PROCESS

4.2.1 Certification Control Points

As mandated by DOE Order 5820.2A, certification of waste is accomplished through the joint efforts of waste generators, WM personnel, and an ORNL WCO. The waste certification process requires (1) generators/GI/GIE declaring that the waste and packaging meet the requirements of the appropriate internal WAC, and (2) WM verifying through review of waste documentation that the waste and packaging meet the applicable WAC, and (3) WM verifying through a field check that the packaged waste meets the applicable WAC. Waste must successfully pass through all three control points prior to being programmatically certified. The process requires information from the generator (waste characteristics, origin, etc.) as well as WM (on-site and off-site WAC requirements, disposal options, etc.). Thus, participation from both entities is required to pass the three control points. The last step in the process is a review of the control point completion documentation and (assuming the review results are satisfactory), the WCO signing of a certification statement that the waste meets the acceptance requirements of the receiving organization/facility. Waste becomes "certified" and released for transfer ONLY after the certification statement is signed by an ORNL WCO. The WCO is responsible for resolving instances where certification to the ORNL internal WAC is not sufficient to satisfy an external WAC (e.g., the external WAC changed with insufficient notification to change the ORNL internal WAC prior to initiating the certification process). See Attachment B for WCO qualification and training requirements.

Waste certification, including NRA determination for hazardous waste, is implemented through the process identified in Figures 3 and 4. The generator/GI/GIE characterizes and packages the waste to meet the internal WAC, establishes access control to preclude addition or removal of package/container contents, and completes/signs the required waste RFD forms. The signature of the GI/GIE is mandatory. This serves as the first process control point (characterization and documentation complete). This includes the NRA determination for hazardous waste. WM provides controls for ensuring compliance with the appropriate WAC. The second control point is the review of the RFD forms and supplementary documents (PK, analytical, etc.) supplied by the generator/GI/GIE and verification by WM that applicable WAC requirements have been met. Control Point 2 verification is indicated by signature of the person(s) who performed the paperwork verification. In the third control point, a routine field inspection of the waste package (to the extent it is safely assessable in the field) is conducted to verify the waste package meets the WAC. Control Point 3 verification is indicated by signature of the person(s) who performed the verification. The signatures of the GI/GIEs and Control Point 2/3 verifiers denote accountability for these process steps. The specific meaning of the signatures is provided in Attachment C.

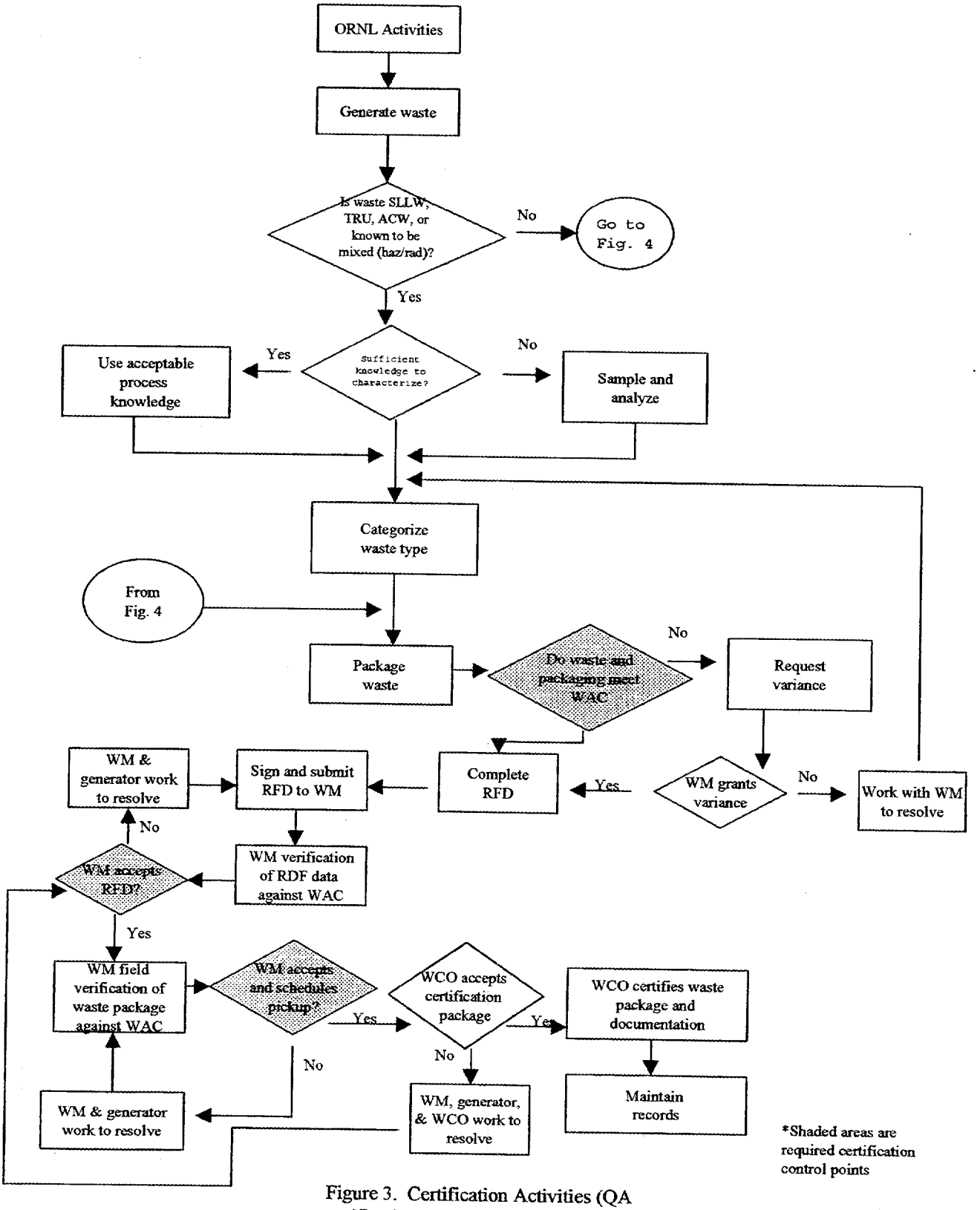

Figure 3. Certification Activities (QA verification activities not shown)

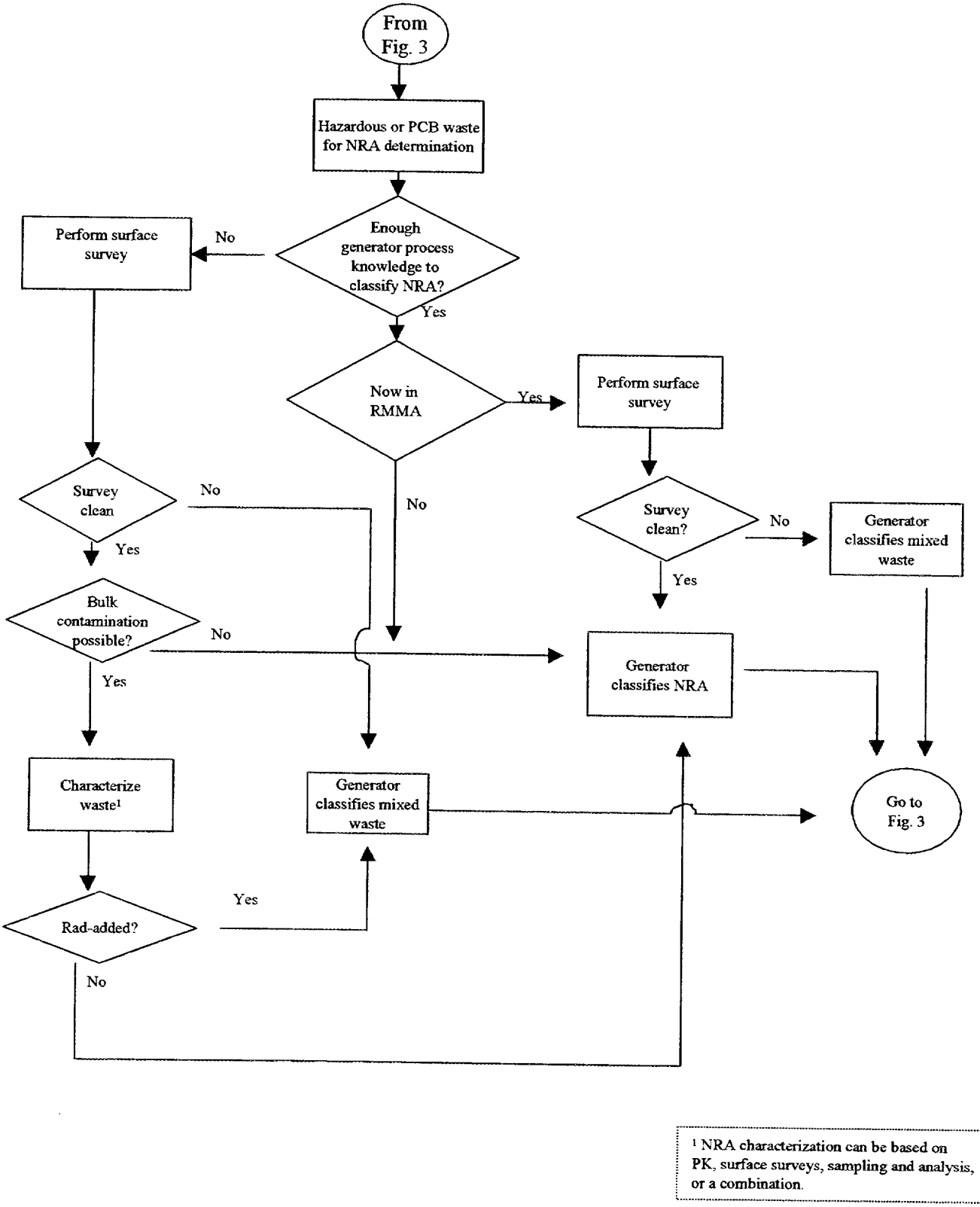

Figure 4. NRA Determination

4.2.2 Error Classification, Reporting, Resolution, and Impacts

In general, waste that does not meet WAC requirements can be rejected at any control point or quality assurance validation check. When waste is rejected, WM communicates with the generator regarding the problem and the generator is responsible for correcting the problem. In addition, information regarding the waste rejection (generator, GI/GIE, waste type, reason for rejection) is provided to the WCO for trending, tracking and programmatic evaluation. More specific information on error handling is provided in the following paragraph.

Control point reviews can result in the identification of errors. The existence of errors does not automatically cause the rejection of a waste package. The severity of the errors may range from simple typographical mistakes where there is no impact on the waste characterization to serious mistakes that cause misclassification of wastes and/or mistakes in packaging. Errors that can cause serious mistakes will be classified as "major errors". Errors that do not cause serious mistakes will be classified as "minor errors". Errors identified during control point reviews will be classified as major or minor by the person performing the review, and will be reported as specified in Table 1. Table 1 also defines the notification and resolution actions for the most common error types. With respect to error impacts, error frequency and type will be used to continually assess certification process activity. During the certification process, both major and minor errors in paperwork and packaging will be assigned to appropriate signatories to determine error rates. Error rates will be computed by GI/GIEl, not division, so areas for corrective action can be specifically identified and addressed. An error rate equal to or greater than 10% for major errors will cause suspension of certification activities (for that GI/GIE, not the whole program). Upon suspension, corrective actions (e.g., retraining) must be defined and implemented before reactivating the certification process. An error rate equal to or greater than 15% for minor errors will result in a review of the specific situation by a WCO. Inability to rectify the minors error rate within an agreed upon time will lead to suspension of certification activities (by GI/GIE). Upon suspension, corrective actions must be defined and implemented before reactivating the certification process.

4.2.3 QA Verification

Quality assurance verification is an integral part of the certification program. The verification process is the responsibility of the WCOs who are independent from the generating organizations. Under the verification process, some SLLW waste containers undergo an additional verification. This verification may include nondestructive examination (NDE) and/or Real-Time Radiography to ensure that prohibited waste materials are not included in waste packaging; the verification may also evaluate certain waste characteristics. For example, TRU waste may be subjected to nondestructive assay (NDA) in addition to NDE. Hazardous waste that has been classified as NRA will be subject to an additional verification of NRA through final random resurveying of some waste packages. In addition, a percentage of hazardous waste will be randomly selected for additional QA verification of contents. After the final verification is completed, the RFD forms become the quality records for that particular waste package and provide item traceability for the waste.

Quality assurance verification specifics are presented in Table 2. These include; objectives, responsibility assignments, verification frequencies, evaluation criteria, reporting and result disposition. Similar to the certification process, error rates will be calculated (by GI/GIE) and tracked by the WCOs to determine certification program strengths and weaknesses in both specific areas and across the entire program. Error rates will also be used to adjust the verification frequencies which are given in Table 2 when deemed necessary by the WCOs. Error rates equal to or greater than 5% will trigger a review of specific process steps or an overall program concept by the WCOs to determine if suspension of any or all certification activities is warranted. Upon suspension, corrective actions must be defined and implemented before reactivating the certification process.

4.2.4 Packaging/Container Procurement, Inspection, and Control

Waste packaging materials/containers are procured by the Procurement organization under specifications reviewed by the WCOs. The WCO ensures that the Procurement organization performs audits of the vendors supplying the purchased products, as necessary. Received products are inspected in accordance with the procurement documents, which define the characteristics to be inspected, the acceptance criteria, and the documentation requirements. The WCOs review these activities as part of the certification program assessments (See Section 7).

The procured packaging/container products are stocked as Central Stores items and purchased by generators as needed. Maintenance of product physical integrity while in Central Stores is the responsibility of the Central Stores organization. After purchase from Stores, ensuring packaging/containers (loaded or unloaded) are protected from effects of weather (particularly over long periods of time) is the responsibility of the generators (or their agents) until the waste packages are transferred to WM.

4.3 NO-RADIOACTIVITY-ADDED DETERMINATION FOR HAZARDOUS WASTE

4.3.1 Introduction

No-radioactivity-added determination is one of the requirements in the WAC for hazardous waste to be shipped to an off-site commercial TSDF that is not licensed to handle radioactivity. The requirement is mandated by the *DOE Performance Objective for Certification of Non-Radioactive Hazardous Waste*. The decision to pursue an NRA determination for a hazardous waste package is based on having adequate and appropriate PK for the package or on the amount of analysis required to make a determination. Analysis beyond that which is required to meet WAC or analytical expenditures that are not cost-effective based on the type and volume of waste, are not required nor desirable. NRA determinations will be based on documented PK, surface surveys, sampling and analysis or a combination. Hazardous waste that does not qualify for NRA will be classified as mixed waste.

4.3.2 Scope and Limitations

No-radioactivity-added classification requirements apply to hazardous waste as defined by 40 CFR 261–268 and TN Rule 1200-1-11-.01 to .10 and waste defined by 40 CFR 761 as TSCA-regulated. Recyclables including used oil, silver sludge, and fluorescent bulbs are specifically excluded from the NRA determination process under this plan, but are subject to ORNL's RPP-420 for free release of materials. Hazardous waste is eligible for NRA evaluation when there is no prior knowledge or evidence that would indicate that the waste has radioactivity added resulting from DOE operations.

4.3.3 No-Radioactivity-Added Determination Process

Generator determination of adequate PK is the first step in the process (Figure 4). If adequate PK exists, classification of waste as NRA requires only documentation of the PK by the generator [and a surface survey if the waste is being removed from a Radioactive Materials Management Area (RMMA)]. If adequate PK does not exist, a surface survey and/or sampling and analysis is required. WM control points are incorporated into the NRA process by reviewing the generator RFD forms to ensure that the documentation, including the PK and any analytical results, is sufficient for making the NRA determination.

The NRA determination process allows maximum use of any PK that exists for a waste item. Generators are encouraged to collect and document as much PK information as possible about the material while it is being used, generated, and stored. PK is useful in two ways. First, with sufficient PK, wastes can be classified as NRA without additional sampling and analysis (although a surface survey is required per DOE Order 5400.5 and 10 CFR 835 if the waste is exiting an RMMA). Second, if PK is insufficient to classify the waste as NRA, the information may be used to limit the analysis that would be required for NRA classification or mixed waste characterization. Guidance on what constitutes adequate PK for NRA has been issued in a guidance document for generator use (WM-SWO-407).

Sampling for NRA determination is conducted using WCP-approved methodologies and criteria (see Procedure ORNL–WM-005). This procedure designates the requirements for sampling, sample management, and who can do the sampling [generator, Office of Environmental Protection (OEP), etc.]. Sampling is conducted only as required to provide information necessary to classify the waste as NRA.

The analytical protocols that can be used for NRA determination address the majority of ORNL NRA wastes. These protocols are based on best available and affordable technology (including appropriate screening methods) and the ability of the method to distinguish added radioactivity in the sample. Acceptable methods must meet established criteria based on sample size, background, efficiency, and count time, or have demonstrated equivalency.

Interpretation of analytical data is based on the Currie method of determining L_D on a per sample basis. This method is used to ensure a maximum 5% probability of false positives and negatives in a single measurement. Analytical results below L_D qualify as NRA. Sample results

above L_D are declared mixed waste, or are eligible for a second sample and/or reanalysis at the generator's option. Items containing or suspected to contain naturally occurring radioactivity or radioactive material "as received" are evaluated on a case-by-case basis for NRA determination by PK. Use of other protocols requires approval by the WCO based on demonstrated equivalency.

Guidance on sufficient PK, sampling, analysis, and interpretation is provided in *ORNL Guidance on No-Radioactivity-Added Characterization for Hazardous and PCB Waste at* (WM-SWO-407).

4.3.4 Radioactive Materials Management Area Designation

Under this program plan, generators are responsible for identifying their RMMAs per Radiation Protection Procedure RPP-230. At ORNL, RMMAs are: (1) contamination areas, high contamination areas, and airborne radioactivity areas; (2) radiological buffer areas established for contamination control; and (3) areas posted to prevent loss of control of activated items. At ORNL, generators are responsible for characterizing the wastes generated in their RMMAs. The WCP does not track or maintain lists of ORNL RMMAs because that status changes over time.

4.3.5 NRA Certification for Hazardous Wastes

Under the WCP, generators make an NRA determination on the RFD forms. The WCO supplies programmatic certification for NRA-hazardous wastes based on the combined efforts of the generator, WM, and the WCO (through oversight of the WCP). The WCP-based NRA certification by the WCO is traceable to each hazardous waste item to meet the DOE Performance Objective requirement for certification of NRA. Programmatic certification is documented before the hazardous waste is shipped off-site.

4.4 OFFSITE SHIPMENT REVIEW PROCESS

Off-site facilities receiving ORNL wastes can include other DOE facilities or commercial facilities. Shipments of ORNL wastes to other DOE facilities and/or commercial facilities must meet the receiving facility's WAC. However, these facilities must also be approved for the specific waste by DOE and/or Lockheed Martin. WM and OEP ensure that the necessary approvals are in place for these shipments. Additionally, WM and OEP jointly ensure that commercial facilities are appropriately permitted and have the necessary licenses, including Nuclear Regulatory Commission licenses, for receipt of mixed waste.

Waste shipments to off-site facilities are initiated and coordinated by ORNL's WM, but are approved for release by the WCO. WM is responsible for selecting the receiving facility, scheduling shipments, and verifying that appropriate licenses, permits, and/or authorizations are in place. The WCO oversees the WM efforts for off-site shipments to verify that all applicable regulatory and WAC requirements are met. The review process is documented via checklists specifically designed for each waste type (SLLW, hazardous, mixed, etc.). WM retains the required records documenting the off-site shipment review process. The certification statement, authorizing shipment release, is signed by the WCO.

5. ORGANIZATIONAL RESPONSIBILITIES

Figure 5 shows the organizational structure for the WCP.

5.1 WASTE GENERATORS

Within the WCP, waste generators are responsible for the waste characterization, packaging, and safe management of waste until it is transferred to WM. At a minimum, GIs and GIEs support generators in meeting their waste characterization responsibilities. As part of the certification program, generators have the following responsibilities:

- attending waste certification and waste characterization training appropriate to their operation;[1]
- properly characterizing, segregating, handling, categorizing, labeling, and packaging the waste per implementing procedure requirements to meet the applicable internal WAC;
- providing complete, accurate characterization information on RFD forms;
- attesting to completeness of characterization information provided;
- meeting all internal WAC requirements for transfer of waste or requesting variance;
- participating in waste certification audits as scheduled;
- maintaining records of how waste was generated and categorized/classified until waste is accepted by WM;
- participating in divisional self-assessments;
- complying with site requirements for RMMA identification per RPP 230.
- maintaining physical integrity of waste packaging materials until used, and packaged wastes until transferred to WM; and
- resolving problems found by WM reviews or the QA verification plan

5.2 WASTE MANAGEMENT ORGANIZATION

The Waste Management Organization is responsible for the following:

- preparing and maintaining WACs and implementing procedures;
- communicating WAC changes to WCO;
- collecting waste from generators;
- verifying that waste is in compliance with WAC requirements;
- approving variance requests to the WACs;
- operating on-site TSDFs and maintaining required records for TSDF activities;
- supplying Control Point 2/3 error data to the WCO in accord with Table 1;
- resolving Control Point errors with generators/GI/GIE/WCOs;
- ensuring that appropriate licenses/permits are in place for off-site transfers;
- conducting internal self-assessments;
- coordinating and contracting with off-site TSDFs;

[1] Refer to Section 6 and the WCP Training Program Plan (see WCP Home Page)

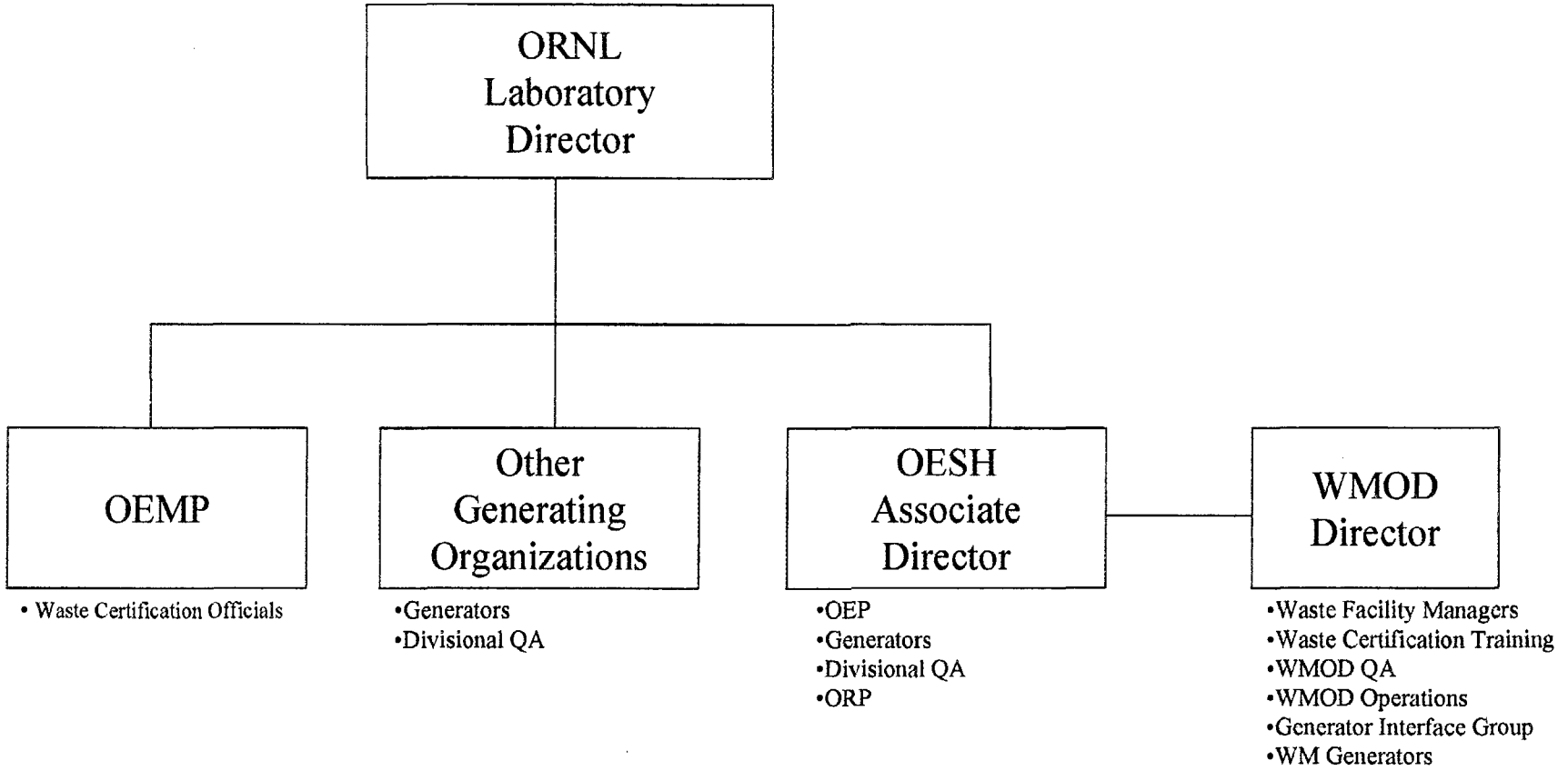

Figure 5. Organizational Chart

- participating in annual waste certification audits;
- implementing WCP training program and verifying generators are properly trained per the WCP;
- overseeing the GI function;
- appointing GI personnel with concurrence of WCOs;
- participating in off-site shipment reviews, as appropriate and;
- preparation of waste packaging materials specifications for procurement of packaging materials from commercial suppliers.

Specific responsibilities for GIs are established on a case-by-case basis through the use of a Memorandum of Agreement between the generator and WM (optional). The primary responsibility of GI/GIE is to assist the waste generators in meeting their responsibilities (Sec. 5.1), and to indicate by their signature the generator waste characterization and packaging meet the applicable internal WAC. This includes notifying generators of changes to WAC requirements. In addition, GI/GIE personnel may be asked to provide the following services:

- assisting in waste characterization;
- completing waste disposal forms;
- coordinating waste removal;
- forecasting waste generation;
- assisting managing waste accumulation areas;
- performing routine inspections/walkthroughs;
- providing assistance in pollution prevention and waste minimization; and
- providing assistance in program audits.

5.3 ORNL WASTE CERTIFICATION OFFICIALS

The ORNL WCOs are responsible for the overall coordination of the program. The WCOs report programmatically through the Director, OEMP. Specific responsibilities include the following:

- overseeing and maintaining the WCP;
- communicating program requirements and any changes through the Waste Certification Home Page (http://www.ornl.gov/OQPI/wcp/wc_prog.htm);
- establishing and implementing the QA verification program - assessing the need for corrective actions based on analysis of error rate tracking and trending;
- coordinating and participating in the certification program audits;
- review and concurrence with waste certification training requirements, and verification of implementation;
- approval of sampling groups and individuals for NRA determination;
- overseeing review of NRA analytical protocols for demonstrated equivalency;
- overseeing case-by-case evaluation of naturally occurring radioactive material for NRA determination;
- coordinating the surveillance program;
- conducting surveillances;
- verifying implementation of corrective actions for identified issues;

- computing and tracking Control Point error rates and taking appropriate actions when error rate limits are exceeded;
- implementing program changes when necessary;
- reviewing changes made to WACs and implementing procedures;
- conducting oversight of off-site shipment to ensure compliance with off-site WAC;
- certifying waste for transfer to TSDs;
- interface with WCT, WM, and LMTPM; and
- resolution of instances where waste certifiable to an ORNL internal WAC will not satisfy the requirements of the target external WAC.

5.4 WASTE CERTIFICATION TEAM

The WCT is comprised of selected representatives of generators, WM, compliance, quality assurance (QA), and radiation protection. The WCT reports to the WCO and is responsible for supporting the WCO in the overall coordination of the program. Specific responsibilities include:

- providing technical and program management recommendations;
- reviewing related program documents prepared by others; and
- making program recommendations.

5.5 DIRECTOR, OFFICE OF ENVIRONMENTAL MANAGEMENT PROGRAMS

The Director, OEMP is responsible for the following:

- Interfacing with DOE-ORO, DOE Site, OEP, ES&H, and other DOE prime contractors;
- Establishing certification program training requirements.

5.6 OFFICE OF ENVIRONMENTAL PROTECTION

The OEP is responsible for the following:

- reviewing WACs and implementing procedures;
- participating in an annual certification program audit;
- participating in off-site shipment review;
- reviewing proposed shipments/manifests for RCRA/PCB compliance as appropriate;
- providing guidance on permitting and regulatory compliance issues; and
- reviewing and approving compliance-oriented variances to WAC requirements.
- participation in off-site shipment reviews, as appropriate

5.7 QUALITY ASSURANCE

Divisional QA personnel are responsible for the following:

- scheduling and completing periodic surveillances in their area of responsibility;
- coordinating divisional surveillances through the WCO;

- providing surveillance results to the WCO and division management for review, evaluation, and distribution; and
- assisting divisional management prepare lessons-learned reports and action plans for correction of deficiencies as necessary following existing ORNL procedures.

5.8 OFFICE OF RADIATION PROTECTION

The Office of Radiation Protection is responsible for:

- setting standards for the maintenance of RMMAs.
- participation in off-site shipment reviews and;
- performing radiological surveys as required/requested for needed RFD data.

5.9 LOCKHEED MARTIN TRANSPORTATION AND PACKAGING MANAGEMENT

Lockheed Martin Transportation and Packaging Management is responsible for:

- ensuring that off-site shipments meet applicable DOE requirements and;
- review of specifications used to procure waste packaging materials.

5.10 PROCUREMENT ORGANIZATION

The Procurement Organization is responsible for:

- purchase of waste packaging materials in accordance with specifications approved by WM
- receipt inspection of waste packaging materials in accordance with specifications approved by WM

5.11 DOE OAK RIDGE OPERATIONS

DOE is responsible for:

- providing funding to ORNL for the safe management of wastes;
- overseeing the WCP to ensure compliance with the requirements of DOE Order 5820.2A and the NRA Performance Objective.

6. TRAINING

The WCP Training Program Plan identifies two levels of required training (see WCP Home Page). Generators are, at a minimum, required to complete a general awareness training. GIs and GIEs complete a more detailed in-depth certification training.

ORNL employees, visitors, and contractors who generate waste covered under the WCP are required to complete the WCP General Awareness Training. This training is available on the Web

(http://train01.wmod.ornl.gov/WMOD/wastcert/wstctwel.htm) or in a self-study packet. The training includes an overview of the WCP, review of generator responsibilities, and instructions on how to access WCP documents. Updates to the generator training are provided when program documents change. Updates are announced to Division Training Officers. Compliance with training requirements is verified by WM during the RFD review process.

Generator interface personnel (including both GIs and GIEs) are required to complete specialized WCP training. This training includes an overview of the WCP, and an in-depth study of the WAC's, implementing procedures, and characterization guidance documents. This training requires class attendance and successful completion of exams. Additional specialized training requirements are identified in the Training Program Plan. GIs are required to take the training for all waste types included in the WCP. GIEs are only required to take the training that is applicable for the waste types he or she will handle. Updates are provided when program documents change. Updates are announced to GIs, GIEs, and Division Training Officers to ensure training is updated promptly.

7. PROGRAM ASSESSMENTS

The WCP will be validated through assessments of the entire program. The majority of the assessment activities are contained in Table 1, which provides for "real-time" error tracking, and Table 2, which provides for validation of generator sampling activities, sampling results, and analyses for waste characterization. An assessment will be conducted annually for the five waste types included in this program plan. Additional assessments will be completed by the divisional self-assessment program and divisional QA personnel. If program deficiencies are indicated, additional assessment focus will be provided to ensure that those areas demonstrate the expected quality improvement. The audit team will include representatives from OEP, WM, the generating organization(s), QA, and/or other organizations as deemed necessary by the ORNL WCO. In some cases, non-ORNL personnel with special expertise will be requested to participate in the annual assessment.

8. CORRECTIVE ACTIONS

Corrective actions will be developed for all deficiencies identified during WCP audits or assessments. A corrective action report will be prepared to document actions taken. These corrective actions will be reviewed and concurred by the WCO. All activities associated with corrective actions will be conducted in accordance with existing ORNL corrective action procedures (ORNL Corrective Action Program, QA-16.1). Program deficiencies will be corrected without interruption of the ongoing program. This can be accomplished because each waste package is traceable. Individual waste item rejections are jointly resolved by WM and generators, however generators are responsible for any costs associated with correcting waste item problems.

9. RECORDS MANAGEMENT

Program documents, which provide evidence of compliance, will be maintained. The responsibility for the following documents is with the WM Records Management Group:

- waste form set and supporting information (including NRA determination for hazardous waste);
- procurement waste packaging specifications; and
- off-site shipment records.

WM Operations is responsible for maintaining WAC variance or exemption approvals and NDE/NDA inspection reports. WM Training is responsible for maintaining WCP training records.

The WCO is responsible for maintaining the following records:

- internal program approvals (NRA methods, etc.)
- final assessment reports;
- final corrective action reports;
- completed surveillance reports; and
- DOE communications and program approvals.

These records will be held a minimum of five years or as directed by applicable regulations or DOE requirements.

10. DOCUMENT CONTROL

Program documents will be controlled as specified in the ORNL Standard Practice Procedure X-AD-9, *ORNL Document Control.*

When existing procedures require revision, and as new ORNL program procedures are needed, requests for these additions or revisions will be presented to the ORNL procedure review committee for concurrence and permission to proceed. As WAC revisions are required, ORNL will participate in review and concurrence. At least once every five years, all related plans, WACs, and procedures will be reviewed for relevancy and revised as necessary.

11. REFERENCES

NOTE: Documents are available on WEB at WCP Home Page unless noted otherwise

1. ORNL Compliance with Hazardous/Low-Level Mixed Waste Acceptance Criteria, ORNL-WM-005

2. ORNL Compliance with Solid Low-Level Waste Acceptance Criteria, ORNL-WM-006

3. ORNL Compliance with Transuranic and Alpha-Contaminated Waste Acceptance Criteria, ORNL-WM-007

4. Performance Objective for Certification of Non-Radioactive Hazardous Waste, U.S. Department of Energy, February 1995. (Not available on WEB)

5. Guidance for Characterization of Hazardous, PCB, and Low-Level Mixed Waste, wm-swo-406

6. Radiological Characterization Plan for Solid Low-Level Waste WM-SWO-507

7. Guidance on No-Radioactivity-Added Characterization for Hazardous and PCB Waste at ORNL, WM-SWO-407

8. Waste Acceptance Criteria for Hazardous and Mixed Waste Treatment and Storage Facilities at the Oak Ridge National Laboratory, WM-SWO-404

9. Waste acceptance Criteria for Solid Low-Level Waste Treatment, Storage, and Disposal Facilities at the Oak Ridge National Laboratory, WM-SWO-505

10. Waste Acceptance Criteria for Transuranic and Alpha-Contaminated Waste Storage Facilities at the Oak Ridge National Laboratory, WM-SWO-506

Table 1. CONTROL POINT ERROR DISPOSITION

NOTE 1: Errors not covered in this table are to be referred to the Waste Certification Official.

NOTE 2: Use Error Reporting Form, Attachment D, to the Waste Certification Program Plan when reporting is indicated in the table. An "equivalent: error report may be used instead of the form. The "equivalent" must include the same information as on the attached form.

Table 1. Typical Errors (RSWOG & HWOG)

Control Point (CP) 1. RFD Paperwork/Waste Package Reviewed by GI or GIE (Mandatory)		
Error Type (Block No. from Forms)	Error Disposition)	Error Report WCC*
Generator does not have current awareness training (W1)	Generator to take current awareness training	N
Charge number invalid (W5)	Generator to provide valid number	N
Physical form incorrect (16)	Generator correct physical form on the WID	N
Waste description listed incorrectly (W29)	Generator correct waste description on the WID	N
Origin date is in the future (I2)	Generator correct the origin date to be in the present (or past)	N
HP Instrument ID not listed on WID (I16) (if required)	Generator request ORP to provide instrument numbers.	N
Signatures missing on WID. (S1, S3)	Generator and/or ORP to sign WIDs.	N
PK Form out of date (greater than 1 year old). (R3)	Generator update PK form or Waste Stream Profile sheets.	N
Fissile content not listed. (R4) (Rad only)	Generator calculate fissile content for fissionable isotopes.	N
Enrichment not listed. (R5) (Rad only)	Generator calculate enrichment wt% if U-234, U-235, or U-238 is listed.	N
Incorrect radioisotopes listed (mis-characterization of waste). (R7, R8, R9) (Rad only)	Generator correct the characterization method and list proper radioisotopes and quantities.	N
Underlying Hazardous Constituents (s) not listed if present. (T14) (RCRA or RCRA-treated)	Generator evaluate material for UHC and list if appropriate.	N
Incorrect Waste Certification Procedure . V1(1)	Generator change WCP number.	N
Analytical data incomplete or missing.	Generator complete or supply missing data.	N

Control Point (CP) 2. RFD Paperwork Reviewed by WM Waste Acceptance Personnel

Error Type (Block No. from Forms)	Error Disposition	Error Report WCC*
Generator does not have current awareness training. (W1)	WM/GI/GIE: Request generator to take current awareness training. Generator: Take required awareness training.	Y
Charge number invalid. (W5)	WM: Inform generator of error, request valid charge number, and correct WID forms. Generator/GI/GIE: Provide valid charge number to WM and change WID template to prevent future errors.	N
Waste description listed incorrectly or not enough detail (i.e.,: "excess chemical"). (W29)	WM: Inform generator of error, request proper information, and correct WID forms. Or return to generator for correction Generator/GI/GIE : Provide adequate waste description and change WID template to prevent future errors.	N
"WASTE MEETS NO RAD ADDED REQUIREMENTS" statement not entered in block W29 when Attachment C is used and waste is no-rad added.	WM: Request signed verification from generator to confirm "no rad added". Generator/GI/GIE : Provide no-rad added verification and change WID template to prevent future errors.	N
Origin date is in the future. (I2)	WM: Inform generator of error, request proper date from generator and correct WID forms. Generator/GI/GIE: Provide proper date to WM and change WID template to prevent future errors.	N
Container number not provided for waste submitted to HWOG. (I5)	WM: Inform generator of error, request container number from generator and correct WID forms. Generator/GI/GIE : Provide container number to WM for 30 gallon or larger. (Note: waste container not overpacked need to be in DOT containers and be labeled with a container number.	N
HP instrument ID not listed on WID, if required (I16)	WM: Request generator to provide information. Generator/GI/GIE : Provide WM with instrument numbers.	N
Signatures missing on WID. (S1, S2, or S3 if required)	WM: Request Generator/GI/GIE to sign documents, return RFD if not signed within two working days. Generator/GI/GIE: Sign documents (provide HP signatures if needed)	Y

Control Point (CP) 2. Paperwork Reviewed by WM Waste Acceptance Personnel (continued)

Error Type (Block No. from Forms)	Error Disposition	Error Report WCC*
Blocks S2, S3, or S4 have "NA" entered in the name, badge, or date field.	WM: Inform generator of the error, remove "NA" entry from the WID fields. Generator/GI/GIE: Change WID template to not enter "NA" into fields S2, S3, S4. (These fields must be blank when no information is needed.)	N
PK Form or waste stream profile sheet out of date (greater than 1 year old). (R3)	WM: Request generator update PK form or Waste Stream Profile Sheet. Generator/GI/GIE: Update PK form or Waste Stream Profile Sheets.	Y
Fissile content not listed. (R4) (Rad only)	WM: Calculate fissile content, correct forms, and notify generator of correction. Generator/GI/GIE: Correct WID template calculate fissile content for future waste streams.	Y
Enrichment not listed. (R5) (Rad only)	WM: Calculate enrichment percent and correct forms, notify generator of correction: Generator/GI/GIE: Correct WID template enrichment percent for future waste streams.	Y
Mischaracterization of rad waste, incorrect characterization method used. (R7, R8, R9) - Large items with surface contamination characterized using method 4. - Waste item with nonstandard geometry characterized using method 4. - Alpha contaminated waste classified as TRU waste. - TRU waste andS LLW packaged in the same container. (Rad only)	WM: Request generator to update characterization method. Generator/GI/GIE: Correct the characterization method and list proper radioisotopes and quantities.	Y
Mischaracterization of haz waste (Attachment C T3-T9) - RCRA or TSCA determination - PCB concentration (Note: excludes simple coding errors)	WM: Request generator to update characterization method. Generator/GI/GIE: Correct the characterization method and list proper components and quantities.	Y
Mischaracterization of mixed waste (Attachment D R7-10, T3-T9) - Radioisotopes incorrectly identified - RCRA or TSCA determination - PCB concentration (Note: excludes simple coding errors)	WM: Request generator to update characterization method. Generator/GI/GIE: Correct the characterization method and list proper radioisotopes and quantities.	Y

Control Point (CP) 2. Paperwork Reviewed by WM Waste Acceptance Personnel (continued)

Error Type (Block No. from Forms)	Error Disposition	Error Report WCC*
Incorrect EPA waste code (Attachments B, C, D - T13)	WM: Inform the generator of the error, identify correct EPA waste code and correct forms. Generator/GI/GIE: Correct WID template to prevent future errors.	Y
Incorrect attachment used for waste stream - Attachment A used for TRU waste - Attachment B used for mixed waste	WM: Request generator submit waste on proper form. Generator/GI/GIE: Complete proper form.	Y
Underlying Hazardous Constituents (s) not listed if present. (T14) (RCRA only)	WM: Inform the generator of the error and document, change "UHC" to indicate present in waste, and correct forms. Generator/GI/GIE: Correct WID template to prevent future errors.	Y
Incorrect Waste Certification Procedure. V1 (1).	WM: Correct Waste Certification Program number to ORNL/TM-13288 on WIDs and notify generator of the error. Generator/GI/GIE: Correct WID template to prevent future errors.	N
Errors on "Container Packing List". - Block I5, Container ID Number, listed incorrectly. - Block I16, HP Tag number, dose rate at surface and 1 meter left blank. - Block P5, Pickup Facility left blank.	WM: Inform generator of the error, correct paperwork if possible. Return RFD if not signed within two working days. Generator/GI/GIE: Correct paperwork and change WID template to prevent future errors.	N
Errors on Waste Pickup Request. - Block S0, Pickup Requestor, no signature entered	WM: Inform generator of the error, correct paperwork if possible. Return RFD if not signed within two working days. Generator/GI/GIE: Correct paperwork and change WID template to prevent future errors.	N

Control Point (CP) 3. Radioactive Container Waste Package Reviewed by RSWOG WM Field Personnel

Error Type (Block No. from Forms)	Error Disposition	Error Report WCC*
Gasket not in place or incorrectly installed on boxes	WM: Notify generator of problem, repair gasket if minor, if not request generator to fix. Generator/GI/GIE: Repair/install gasket, inspect future boxes for proper gasket installation.	Y
55-gallon drum bolt not torqued to 45 ft lbs +/- 5 lbs.	WM: Notify generator of problem, torque drum if possible, if not, request generator to torque drum(s). Generator/GI/GIE: Torque drum(s), inspect future drums for proper torque.	N
Lock nut improperly placed on drum ring bolt.	WM: Notify generator of problem, properly install lock nut on outside of drum lid ring if possible, if not, request generator to install nut. Generator/GI/GIE: Properly install lock nut on drum ring bolt, inspect future drums for proper lock nut placement.	N
Rad tag missing or out of date on rad-waste box or drum.	WM: Notify generator of missing or out-of-date rad tag. Generator/GI/GIE: Request HP to provide rad tag for the waste container and inspect future containers for proper rad tag placement.	Y
Physical integrity of waste container not acceptable, excess corrosion, rust, dents, or damage.	WM: Notify generator of problem. Generator/GI/GIE: Repair or repackage waste into acceptable container. Inspect future containers to verify physical integrity is acceptable.	Y
Paperwork does not match waste container.	WM: Notify generator of problem. Generator/GI/GIE: Correct paperwork to match waste container.(I.e., wrong container type).	Y
Drum does not meet DOT spec. UN 1A2/X or UN 1A2/Y	WM: Notify generator of problem. Generator/GI/GIE: Repackage waste into acceptable container.	Y
Container bar codes not on opposing sides (drums) Container bar codes not on four sides (boxes).	WM: Notify generator of problem. Generator/GI/GIE: Replace bar codes onto proper location.	Y

Control Point (CP) 3. Hazardous Container Waste Package Reviewed by RSWOG WM Field Personnel

Error Type (Block No. from Forms)	Error Disposition	Error Report WCC*
Container description or physical contents does not match paperwork (i.e., paperwork indicates solid when waste is actually liquid, or paperwork indicated powder when waste is actually solids).	WM: Correct paperwork to match container characteristics. Notify generator of problem. Generator/GI/GIE: Ensure future waste package paperwork submitted match actual waste container physical characteristics.	Y
Aerosol cans partially full and paperwork indicates empty.	WM: Notify generator of problem. Generator/GI/GIE: Segregate empty aerosol cans from partially full and generate paperwork for cans containing material.	Y
Containers of liquids or solids not listed on the paperwork, (and not evaluated by WM chemists), that are placed inside of packages labeled plastic, rags, paper.	WM: Notify the generator of the problem. Generator/GI/GIE: Segregate and identify waste items and list on WID forms for evaluation by WM prior to submitting for disposal. Inspect container contents prior to submitting to ensure all waste is identified and characterized.	Y
Out-of-date drums, DOT 17H, 17C, 17 E, 6D, are being used to package hazardous/mixed waste after October 1, 1996 instead of the new "UN" spec. Drums.	WM: Notify the generator of the problem. Generator/GI/GIE: When using steel drums to package hazardous waste, use only the drums which have the newer UN numbers stamped or stenciled on them. Drums of hazardous/mixed waste that are packaged AFTER October 1, 1996 that have the old style spec numbers (i.e. 17H, 6D, 17E, etc.) are no longer acceptable.	Y
Lids are taped onto containers.	WM: Notify the generator of the problem. Generator/GI/GIE: Repackage the waste into a container that has a tightly sealing lid. Inspect future waste container to ensure container has a tightly sealing lid.	Y

*Use error tracking form attached to WCP.

TABLE 2. QUALITY ASSURANCE VERIFICATION PROGRAM

NOTE 1: The verification frequencies specified in Table 2 are based on historical error data and field operating experience as opposed to a standard statistical sampling plan. A statistically based sampling plan is currently being developed for implementation upon its completion.

NOTE 2: Use Error Reporting Form (Attachment D) to the Waste Certification Program Plan when reporting is indicated in the table. An "equivalent" error report may be used instead of the attached from. The "equivalent" must include the same information as on the attached form.

TABLE 2

WASTE TYPE: CH-SLLW

QA OBJECTIVE	VERIFICATION FREQUENCY	IMPLEMENTED BY	INSPECTION METHOD	ERROR EXISTS IF	ERROR DISPOSITION	REPORTING TRACKING
Confirm detectable* WAC prohibited items are absent.	1 of every 2 waste containers each GI/GIE for: Environmental Restoration, Construction Projects, and Plant & Equipment wastes. All other divisions, 1 of every 10 waste containers for each GI/GIE. For small quantity generators, 1 every three months for each GI/GIE	Selection of containers by WCO. Containers transported to inspection site by RSWOG. Inspection by NDE staff or RSWOG staff*.	NDE or physical search. Method to be determined by WCO.	WAC prohibited items are detected.	RSWOG to contact generator/ GI/GIE to determine method for remediation of waste container.	Inspection staff to complete error form and transmit to RSWOG, WCO, and Generator/GI/GIE.

*Dependent on inspection method.

TABLE 2

WASTE TYPE: CH-SLLW, MIXED, CH-TRU

QA OBJECTIVE	INSPECTION FREQUENCY	IMPLEMENTED BY	INSPECTION METHOD	ERROR EXISTS IF	ERROR DISPOSITION	REPORTING TRACKING
Verify PK radiological characterization is credible.	6 WID/month for CH-SLLW and Mixed wastes 1 of every 10 waste containers for CH-TRU.	WID and radionuclide selection by WCO. Sampling and sample transfers by OEP. Items for NDA transferred to inspection site by RSWOG.	Analytical chemistry and/or NDA	Deviation from PK reported values is unreasonable in judgement of SMEs.	SMEs to resolve error with generator/GI/GIE and WCO. Generator/GI/GIE to correct RFD form set consistent with resolution.	WCO to prepare error report, send to generator/GI/GIE and SME, and enter in Program files.

TABLE 2

WASTE TYPE: RH-SLLW, RH-TRU

QA OBJECTIVE	VERIFICATION FREQUENCY	IMPLEMENTED BY	INSPECTION METHOD	ERROR EXISTS IF	ERROR DISPOSITION	REPORTING TRACKING
Verify PK waste characterization basis is credible.	1 of every 10 WIDs for each GI/GIE.	WCO or designee.	Assessment of rationale used to develop PK data by interview and review of records with generator/GI/ GIE	Assessment indicates basis for PK data is invalid.	SME rad team, WCO, RSWOG and waste generator to determine an acceptable characterization approach.	WCO or designee to complete error form and transmit to SME rad team, GI/GIE.

TABLE 2

WASTE TYPE: CH-TRU

QA OBJECTIVE	VERIFICATION FREQUENCY	IMPLEMENTED BY	INSPECTION METHOD	ERROR EXISTS IF	ERROR DISPOSITION	REPORTING TRACKING
Confirm detectable* WAC prohibited item are absent. *limited to inspection method capability	1 of every 10 waste containers for each GI/GIE.	Selection of containers by WCO. Containers transported to NDE site by RSWOG Inspection by NDE staff.	NDE	WAC prohibited items are detected.	Waste container will be returned by RSWOG to generator for remediation.	NDE inspection staff to complete error form and send to WCO, RSWOG, and waste generator/GI/GIE.

TABLE 2

WASTE TYPE: HAZARDOUS

QA OBJECTIVE	VERIFICATION FREQUENCY	IMPLEMENTED BY	INSPECTION METHOD	ERROR EXISTS IF	ERROR DISPOSITION	REPORTING TRACKING
Verification of PK waste characterization for corrositivity.	10 WIDs/month.	HWOG to select WIDs. HWOG to complete pH test.	Most practical methodology that provides results for valid test against requirements (e.g.,pH probe, pH paper)	Inspection results necessitate a change in the EPA waste code.	HWOG will change the waste coding as necessary and notify the waste generator/GI/GIE.	HWOG to submit error report to WCO.

TABLE 2

WASTE TYPE: HAZARDOUS

QA OBJECTIVE	VERIFICATION FREQUENCY	IMPLEMENTED BY	INSPECTION METHOD	ERROR EXISTS IF	ERROR DISPOSITION	REPORTING TRACKING
Verification of PK waste characterization for Ignitability.	5 WIDs/month.	WCO to select WIDs to be sampled. OEP to obtain samples and transfer to analytical laboratory. Analytical laboratory to complete flashpoint test and transmit results to WCO.	Analytical method 1010 or 1020A.	Analytical results would necessitate a change in the EPA waste code.	Upon direction from WCO, HWOG will change the EPA waste code on the RFD and notify the waste generator/GI/GIE.	WCO to prepare an error report form and enter into Program files.

TABLE 2

WASTE TYPE: HAZARDOUS

QA OBJECTIVE	VERIFICATION FREQUENCY	IMPLEMENTED BY	INSPECTION METHOD	ERROR EXISTS IF	ERROR DISPOSITION	REPORTING TRACKING
Confirm analytical results are valid by review of (1) analytical methodology, (2) holding times and, (3) instrument calibration.	1 WID every 3 months	WCO to select the WID and SME. SME(s) to complete the review.	Assessment of analytical records.	Appropriate analytic method(s) not used, holding time(s) missed, and/or instrument calibration(s) out of date.	Re-analyze for missed/incorrect parameters.	SME to complete error form and distribute to WCO, HWOG, and generator/GI/GIE.

TABLE 2

WASTE TYPE: MIXED

QA OBJECTIVE	VERIFICATION FREQUENCY	IMPLEMENTED BY	INSPECTION METHOD	ERROR EXISTS IF	ERROR DISPOSITION	REPORTING TRACKING
Verify RCRA hazardous PK characterization basis is credible.	1 WID/month	Sample selection by WCO. Assessment by WCO or designee.	Assessment of rationale used to develop RCRA PK data by interview and review of records with generator/GI/ GIE	Assessment indicates basis for PK data is invalid.	HWOG and waste generator to determine an acceptable characterization method.	WCO or designee to complete error form and transmit to HWOG, and Generator/GI/GIE.

TABLE 2

WASTE TYPE: All Appropriate

QC OBJECTIVE	VERIFICATION FREQUENCY	IMPLEMENTED BY	INSPECTION METHOD	ERROR EXISTS IF	ERROR DISPOSITION	REPORTING TRACKING
For waste characterization where sampling and analysis is used: ensure the sampling plan is adequate and the sampling event is consistent with the sampling plan.	1 WID every 3 months.	WCO requests sampling group or GI/GIE to notify WCO of pending sampling event.	WCO to review sampling plan and observe sampling event.	Sampling plan is deficient Sampling event deviates from sampling plan. .	Correct the plan and/or resample.	WCO completes error form, sends to waste generator/GI/GIE.

TABLE 2

WASTE TYPE: All Wastes That Are Containerized

QC OBJECTIVE	VERIFICATION FREQUENCY	IMPLEMENTED BY	INSPECTION METHOD	ERROR EXISTS IF	ERROR DISPOSITION	REPORTING TRACKING
Verify procurement of waste packaging materials (including boxes and drums) meets Certification Program requirements	Annual	WCO	Review of Procurement records (e.g., purchase and receipt)	Procurement actions do not meet Certification Program requirements	Notify generators/GI/GIE to discontinue use of potentially affected packaging materials Assess potential impact on Certification Program and take appropriate corrective actions	WCO to complete error form.

TABLE 2

WASTE TYPE: All

QC OBJECTIVE	VERIFICATION FREQUENCY	IMPLEMENTED BY	INSPECTION METHOD	ERROR EXISTS IF	ERROR DISPOSITION	REPORTING TRACKING
Verify applicable training requirements are met for GI/GIE, CP-2, CP-3, and WCO staff	Annually	WCO	Review of training records against Certification Program requirements	Any staff not trained to required level	Suspend individual's certification activities until required training is completed Assess potential impact on certified wastes and certification program on case by case basis and take appropriate corrective action	WCO to complete error form

ATTACHMENT A

GI/GIE QUALIFICATION AND TRAINING
REQUIREMENTS

Job Qualification

Title: Generator Interface (GI) and Generator Interface Equivalent (GIE) personnel

Education Required:
Minimum of Bachelor of Science degree in science, engineering, or related discipline or equivalent experience and specialized training.

Experience Required:
Three years job related experience in hazardous and/or radioactive waste handling operations and one year nuclear or research facility experience or equivalent.

Required Skills:
Knowledge of the applicable radioactive, hazardous, mixed, and/or TSCA (PCBs), waste management requirements and application of relevant DOE, EPA, state and DOT regulations is required. Personnel must also be familiar with waste categorization, characterization, packaging, certification (see ORNL Waste Certification Program Plan), and transportation procedures applicable to the waste generating organization's tasks/operations. The GI/GIE personnel must have effective communication skills (both verbal and written).

Roles and Responsibilities (Individual roles and associated training are dependent on the particular waste stream generated, i.e., hazardous training modules not required if hazardous waste is not being handled by the GIE. GIs shall receive training on all waste streams):

Provide direct assistance to assigned waste generators with regard to waste categorization, characterization, and/or packaging involving applicable waste streams: (Liquid low level waste (LLLW); Solid low level waste (SLLW); Transuranic (TRU) waste; Hazardous waste; Mixed waste; Toxic Substances Control Act waste (PCB); Sanitary/Industrial waste, or Recyclables.

Complete and manage as applicable the waste data package, waste stream profile sheets, process knowledge forms, sampling/analysis request, Generator Entry System (GES) input, and other required supporting documentation.

Sign form UCN-2109 to indicate the waste has been properly characterized, packaged, the documentation forms have been accurately prepared, and meets the applicable internal waste acceptance criteria or variances.

Provide quality control verification of waste container contents, descriptions, characterization, and packaging by performing visual inspections of randomly selected containers.

Assist, support, and provide technical advice to the waste generator in pollution prevention, waste minimization, waste storage, recycle/reuse issues, and other waste management topics.

Provide assistance to the generator with internal/external assessments.

Work with the applicable waste management staff to coordinate waste pick-up and provide

assistance to ensure compliance with DOT (49 CFR) requirements (i.e., assist with repackaging and/or labeling, as appropriate).

Serve as technical interface/liaison between the waste generator, the waste service organizations, waste certification staff, auditors, TSDF personnel, and other affected organizations.

Manage/assist generators with their waste accumulation areas (90-day areas and satellite areas, and/or PCB areas) and understand the rules and regulations governing generator waste handling requirements under RCRA or TSCA.

Complete training on applicable waste management and generating organization procedures, waste acceptance criteria, health and safety, radiation worker, and other additional training based on the particular hazards and requirements of the job assignment.

Specific Generator Interface (GI) and Generator Interface Equivalent (GIE) Baseline Training Requirements: (General training requirements not listed (i.e.; GET, Ethics, Security, etc.)

Radioactive Solid Low Level Waste Generator Training

Module No.[1]	Hours	Frequency[2]	Topic
018614	1	3	Waste Certification Program - General Awareness Training
017900	1	2	Hazardous Waste Awareness Level Training
090080	4	1-time	GES
090169	6	3	Solid Low-Level Waste/Generator Interface Program
090163	6	1-time	Basic Environmental Law
090177	1	1-time	Nevada Test Site WAC Awareness - Web Training
090201	1	2	ORNL Specific NCS Training for Supervisors (if required)
090202	16	2	LMER NCS Training for Supervisors (if required)
010046	2.5	1	ORNL General Respiratory Training
017711	8	2	Radiological II Training for LMER/ORNL-DOE Core
090227	2	2	Procedure-use-exam for the ORNL WCT
090150	3	3	DOT HM-126F General Awareness/Familiarization
090152	3	3	DOT HM-126F Identification of Hazardous Materials
090153	2	3	DOT HM-126F Packing Operations
090154	1	3	DOT HM-126F Marking
090155	2	3	DOT HM-126F Labeling
090156	2	3	DOT HM-126F Shipping Papers
090157	2	3	DOT HM-126F Placarding
090158	1	3	DOT HM-126F Separation and Segregation by Highway
090159	2	3	DOT HM-126F Unique Moves
090160	1	3	DOT HM-126F Safety
090161	8	3	DOT HM-126F Radioactive Materials Transportation
090162	2	3	DOT HM-126F Hazardous Waste Transportation
	Variable	2	Radioanalytical Characterization Techniques

[1]Or updated equivalent

[2]Number indicates years between retraining

Specific Generator Interface (GI) and Generator Interface Equivalent (GIE) Baseline Training Requirements: (General training requirements not listed (i.e.; GET, Ethics, Security, etc.)

Transuranic Waste Generator Training

Module No.[1]	Hours	Frequency[2]	Topic
018614	1	3	Waste Certification Program - General Awareness Training
017900	1	2	Hazardous Waste Awareness Level Training
090080	4	1-time	GES
090170	2	3	Transuranic Waste/Generator Interface Program
090163	6	1-time	Basic Environmental Law
090201	1	2	ORNL Specific NCS Training for Supervisors (if required)
090202	16	2	LMER NCS Training for Supervisors (if required)
017711	8	2	Radiological II Training for LMER/ORNL-DOE Core
090227	2	2	Procedure-use-exam for the ORNL WCT
090150	3	3	DOT HM-126F General Awareness/Familiarization
090152	3	3	DOT HM-126F Identification of Hazardous Materials
090153	2	3	DOT HM-126F Packing Operations
090154	1	3	DOT HM-126F Marking
090155	2	3	DOT HM-126F Labeling
090156	2	3	DOT HM-126F Shipping Papers
090157	2	3	DOT HM-126F Placarding
090158	1	3	DOT-HM-126F Separation and Segregation by Highway
090159	2	3	DOT-HM-126F Unique Moves
090160	1	3	DOT-HM-126F Safety
090161	8	3	DOT-HM-126F Radioactive Materials Transportation
090162	2	3	DOT HM-126F Hazardous Waste Transportation

[1]Or updated equivalent

[2]Number indicates years between retraining

Specific Generator Interface (GI) and Generator Interface Equivalent (GIE) Baseline Training Requirements: (General training requirements not listed (ie; GET, Ethics, Security, etc.)

Hazardous/PCB Waste Generator Training

Module No.[1]	Hours	Frequency[2]	Topic
018614	1	3	Waste Certification Program - General Awareness Training
090080	4	1-time	GES
090172	3	1-time	Hazardous Mixed/Generator Interface Program
090163	6	1-time	Basic Environmental Law
090227	2	2	Procedure-use-exam for the ORNL WCT
006794	8	1-time	RCRA Land Disposal Restrictions
006795	8	1-time	RCRA Fundamentals: Avoiding the Most Common Mistakes
007522	8	1-time	Advanced RCRA Topics
017899	3	1	RCRA Hazardous Waste Characterization at ORNL
018176	1.5	1	RCRA Land Disposal Restriction for Generators at ORNL
018192	1.5	1	RCRA Satellite Accumulation Area at ORNL (if area operator)
018193	1.5	1	RCRA 90-Day Accumulation Area at ORNL
090150	3	3	DOT HM-126F General Awareness/ Familiarization
090152	3	3	DOT HM-126F Identification of Hazardous Materials
090153	2	3	DOT HM-126F Packing Operations
090154	1	3	DOT HM-126F Marking
090155	2	3	DOT HM-126F Labeling
090156	2	3	DOT HM-126F Shipping Papers
090157	2	3	DOT HM-126F Placarding
090158	1	3	DOT HM-126F Separation and Segregation by Highway
090159	2	3	DOT HM-126F Unique Moves
090160	1	3	DOT HM-126F Safety
090161	8	3	DOT HM-126F Radioactive Materials Transportation
090162	2	3	DOT HM-126F Hazardous Waste Transportation
090116	24	1-time	HAZWOPR 24-h for ORNL (if applicable)
090119	8	1	HAZWOPR Refresher for ORNL (if applicable)

[1]Or updated equivalent
[2]Number indicates years between retraining

Specific Generator Interface (GI) and Generator Interface Equivalent (GIE) Baseline Training Requirements: (General training requirements not listed (ie; GET, Ethics, Security, etc.)

Mixed Waste Generator Training

Module No.[1]	Hours	Frequency[2]	Topic
018614	1	3	Waste Certification Program - General Awareness Training
090080	4	1-time	GES
090172	3	1-time	Hazardous Mixed/Generator Interface Program
090163	6	1-time	Basic Environmental Law
090201	1	2	ORNL Specific NCS Training for Supervisors (if required)
090202	16	2	LMER NCS Training for Supervisors (if required)
010046	2.5	1	ORNL General Respiratory Training
017711	8	2	Radiological II Training for LMER/ORNL–DOE Core
090227	2	2	Procedure-use-exam for the ORNL WCT
006794	8	1-time	RCRA Land Disposal Restrictions
006795	8	1-time	RCRA Fundamentals: Avoiding the Most Common Mistakes
007522	8	1-time	Advanced RCRA Topics
017899	3	1	RCRA Hazardous Waste Characterization at ORNL
018176	1.5	1	RCRA Land Disposal Restriction for Generators at ORNL
018192	1.5	1	RCRA Satellite Accumulation Area at ORNL
018193	1.5	1	RCRA 90-Day Accumulation Area at ORNL
090150	3	3	DOT HM-126F General Awareness/ Familiarization
090152	3	3	DOT HM-126F Identification of Hazardous Materials
090153	2	3	DOT HM-126F Packing Operations
090154	1	3	DOT HM-126F Marking
090155	2	3	DOT HM-126F Labeling
090156	2	3	DOT HM-126F Shipping Papers
090157	2	3	DOT HM-126F Placarding
090158	1	3	DOT HM-126F Separation and Segregation by Highway
090159	2	3	DOT HM-126F Unique Moves
090160	1	3	DOT HM-126F Safety
090161	8	3	DOT HM-126F Radioactive Materials Transportation
090162	2	3	DOT HM-126F Hazardous Waste Transportation

[1]Or updated equivalent

[2]Number indicates years between retraining

Attachment B

WCO QUALIFICATION AND TRAINING REQUIREMENTS

Job Qualification

Title: Waste Certification Official

Education Required:
A minimum of a B.S. in science, engineering, or related discipline or an equivalent of experience, education, and specialized training is required. Three years of job related experience and one year of nuclear or research facility experience or equivalent are required.

Required Skills:
Ability to apply comprehensive knowledge of the following elements; basic quality assurance and certification program principles, federal and state regulatory requirements (RCRA/CERCLA/DOT), DOE Orders, waste characterization techniques and requirements of both internal and external Waste Acceptance Criteria (WAC).

Major Roles and Responsibilities:

- Certify as ORNL legal representative, that wastes to be transferred for treatment storage, and/or disposal meet the receiving organization's waste acceptance requirements.

- Establishment, preparation, and maintenance of an ORNL Waste Certification Program (WCP) in compliance with DOE Order 5820.2A, 40 CFR, and ORNL policies and objectives.

- Oversee the implementation of the ORNL WCP. Communicate program requirements and changes through the Waste Certification Home Page.

- Review and concur with waste certification training requirements.

- Establish and maintain documentation that supports WCP implementation including: (1) ORNL internal WACs for all waste streams, (2) implementing procedures; and (3) guidance documents.

- Establish and maintain a formal change process for management of controlled documents (e.g., WACs, implementing procedures).

- Establish and maintain a record retention system for program quality records.

- Compute and track control point error rates and ensure appropriate actions are taken when error rate limits are exceeded.

- Approve sampling groups and individuals for NRA determination; oversee review of NRA analytical protocols for demonstrated equivalency and oversee case-by-case evaluation of Naturally Occurring Radioactive Material for NRA determination.

- Provide oversight of off-site shipments, where applicable, to ensure compliance with

WAC and certify waste by signature for transfer to Bechtel Jacobs Company or off-site. In this function must be knowledgeable of off-site disposal/WACs (e.g., Nevada Test Site, Hanford, etc.).

- Interface with WCP, waste operations, compliance, and transportation personnel and waste generators as needed.

- Establish and implement a quality assurance verification program assessing the need for corrective actions based on analytical or error rate tracking and trending.

- Lead auditor responsibilities (as applicable to WCO):
  Lead, coordinate, and participate in certification program audits. Verify implementation of corrective action for identified issues. Coordinate surveillance program and conduct surveillance. Coordinate with ORNL issues manager to ensure that findings/observations are addressed in accordance with ORNL protocol.

Training Requirements for WCO Position

The following training modules must be completed to carry out the duties and responsibilities of an ORNL Waste Certification Officer.

Module No.[1]	Hours	Frequency[2]	Topic
090171	2.0	3	Liquid Waste/Generator Interface Program
090169	6.0	3	Solid Low-Level Waste/Generator Interface Program
090170	2.0	3	Transuranic Waste/Generator Interface Program
090172	3.0	1-time	Hazardous Mixed/Generator Interface Program
090272	0.5	as needed	GI/GIE Update Training: ORNL-WM-005
090298	4.0	1-time	ORNL GI/GIE Training - April 1998 Update
017899	3.0	1	RCRA Hazardous Waste Characterization at ORNL
090307	1.0	1-time	No-Rad Added - Performance-based Training
018176	1.5	1	RCRA Land Disposal Restrictions for Generators at ORNL
090150	3.0	3	DOT HM-126F General Awareness/Familiarization
090160	1.0	3	DOT HM-126F Safety
090222	1.0	2	Off-Site Shipment PUE for ORNL WCC (WM-SWO-501.11 & 401.2)
017711	8.0	2	Radiological II Training for LMER/ORNL - DOE Core
090177	1.0	1-time	Nevada Test Site (NTS) WAC Awareness - WEB Training
018614	1.0	3	Waste Certification Program - General Awareness Training
006794	8.0	1-time	RCRA Land Disposal Restrictions (McCoy)
006795	8.0	1-time	Avoiding the Most Common Mistakes (McCoy)
007522	8.0	1-time	Advanced RCRA Topics (McCoy)

[1]Or updated equivalent
[2]Number indicates years between retraining

ATTACHMENT C

MEANING OF SIGNATURES

What Signatures Mean

Generator (CP1)	Waste characterization information provided to GI/GIE is complete and accurate to the best of the generator's knowledge, and a documented basis exists that supports the information provided.
GI/GIE (CP1)	The waste meets the ORNL internal WAC in effect on the date of signature (i.e., the waste characterization data submitted via RFD form set is complete and correct to the extent that it satisfies the WAC, and the waste is packaged to meet the WAC). Also, a documented basis exists to support the characterization information provided.
Waste Acceptance Staff (CP 2)	The waste characterization documentation submitted by the GI/GIE via the RFD form set satisfies the ORNL internal WAC in effect on the date the GI/GIE signed the RFD form.
WM Field Tech (CP 3)	Based on a physical check of the waste package WAC elements assessable in the field, the waste package satisfies the ORNL internal WAC in effect on the date the GI/GIE signed the RFD form.
WCO	Waste is CERTIFIED to meet the WAC of the receiving organization/facility.

ATTACHMENT D
ERROR REPORTING FORM

Waste Item ID Number:	**Container ID Number:**
Generator's Name:	**GI or GIE's Name:**
Date Error Identified:	**Error Identified by:**
Error Description:	
Comments:	

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