



**OAK RIDGE
NATIONAL
LABORATORY**

LOCKHEED MARTIN



**WASTE CERTIFICATION PROGRAM
PLAN**

for

OAK RIDGE NATIONAL LABORATORY

Robert C. Orrin

May 1997

Safety and Health

MASTER

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED

**LOCKHEED MARTIN ENERGY RESEARCH
CORPORATION**
Oak Ridge, Tennessee

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

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

This report has been reproduced directly from the best available copy.

Available to DOE and DOE contractors from the Office of Scientific and Technical Information, P. O. Box 62, Oak Ridge, TN 37831; prices available from (423) 576-8401, FTS 626-8401.

Available to the public from the National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161.

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government of any agency thereof.

WASTE CERTIFICATION PROGRAM PLAN
for
OAK RIDGE NATIONAL LABORATORY

Robert C. Orrin

May 1997

Safety and Health

LOCKHEED MARTIN ENERGY RESEARCH CORPORATION
Oak Ridge, Tennessee

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

WASTE CERTIFICATION PROGRAM PLAN
FOR
OAK RIDGE NATIONAL LABORATORY

May 1997

Prepared by: *RC Drinn* Date: 5/21/97
ORNL Waste Certification Coordinator

Approved by: *Lo Drinn* Date: 6/23/97
Division Director,
Waste Management and Remedial Action Division

Approved by: *RB Mugh* Date: 21/May/97
Acting Director,
Office of Environmental Compliance and Documentation

TABLE OF CONTENTS

FIGURES	iii
1. PURPOSE	1
2. SCOPE AND LIMITATIONS	1
3. PROGRAM DESCRIPTION	2
3.1 PROGRAM ELEMENTS	2
3.2 CERTIFICATION PROCESS	4
4. ORGANIZATIONAL RESPONSIBILITIES	6
4.1 ORNL WASTE CERTIFICATION COORDINATOR	6
4.2 WASTE MANAGEMENT ORGANIZATION	6
4.3 WASTE GENERATORS	8
4.4 OFFICE OF ENVIRONMENTAL COMPLIANCE AND DOCUMENTATION	8
4.5 QUALITY ASSURANCE	9
5. TRAINING	9
6. PROGRAM ASSESSMENTS	9
7. CORRECTIVE ACTIONS	10
8. RECORDS MANAGEMENT	10
9. DOCUMENT CONTROL	10
10. PILOT PROGRAM SCHEDULE	11
11. REFERENCES	11

FIGURES

1. ORNL Waste Certification Program Model	3
2. Certification Activities	5
3. Organizational Chart	7

1. PURPOSE

This document defines the waste certification program developed for implementation at Oak Ridge National Laboratory (ORNL). The document describes the program structure, logic, and methodology for certification of ORNL wastes. The purpose of the waste certification program 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 U. S. Department of Energy (DOE) Order 5820.2A, *Radioactive Waste Management*, and ensures that 40 CFR documentation requirements for waste characterization are met for mixed (both radioactive and hazardous) and hazardous (including polychlorinated biphenyls) waste. Program activities will be 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 wastes generated by DOE operations. The Order also specifies that each generator of waste shall implement a low-level and mixed waste certification program to provide assurance that the WACs are met. Generators of waste and Waste Management are each responsible for their actions in ensuring compliance with the WAC. In addition, the regulations of the Resource Conservation and Recovery Act and the Toxic Substance Control Act require accurate characterization of wastes such that development of a waste certification program 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; liquid low-level waste (LLLW), including all liquid wastes that go to liquid low-level waste, process waste, and nonradiological wastewater treatment facilities; hazardous waste; and mixed waste. Requirements for management of these wastes have been incorporated into four ORNL WACs. The four ORNL WACs addressed by this program plan are SLLW WAC (WM-SWO-505), TRU WAC (WM-SWO-506), LLLW WAC (WMRA-WPCPP-201), and hazardous/mixed WAC (WM-SWO-404). Wastes not included in the program are sanitary, industrial, storm water, Coal Yard Runoff Treatment Facility Basin influent and effluent, air emissions, and recyclable materials that are not handled by Waste Management prior to off-site transfer.

3. PROGRAM DESCRIPTION

3.1 PROGRAM ELEMENTS

In keeping with necessary and sufficient principles, the ORNL Waste Certification Program is designed to meet applicable DOE orders and regulatory requirements through development or use of existing program documents and Level 1 procedures in place at ORNL. Figure 1 illustrates the structure of this program. This program has been designed to ensure compliance and provide flexibility so that off-site treatment, storage, and disposal facility (TSDF) options can be included. For example, if off-site treatment and disposal is a viable option, the off-site facility's WAC for that particular waste type can be incorporated into the appropriate on-site WAC.

Four WACs have been developed to inform the waste generator of requirements that must be met prior to Waste Management's acceptance of a particular 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 for those requirements. The process for obtaining WAC variances are described in the individual WACs. WACs can be accessed on the Web at the following sites:

- SLLW WAC (WM-SWO-505) - <http://www-internal.ornl.gov/ORNL/directives/data/sllwwacl.htm>
- TRU WAC (WM-SWO-506) - <http://www-internal.ornl.gov/ORNL/directives/data/wm/truwac.htm>
- LLLW WAC (WMRA-WPCPP-201) - <http://www-internal.ornl.gov/ORNL/directives/data/wm/wpcpp201.htm>
- Haz/Mixed WAC (WM-SWO-404) - <http://www-internal.ornl.gov/ORNL/directives/data/wm/wmswo404.htm>

Waste generator implementation procedures for each WAC have been issued and provide specific instructions to meet the associated WAC. These procedures describe, for example, when and how process knowledge 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 following sites:

- SLLW (ORNL-WM-006) - <http://www-internal.ornl.gov/ORNL/directives/data/wm/wm006a.htm>
- TRU (ORNL-WM-007) - <http://www-internal.ornl.gov/ORNL/directives/data/wm/wm007.htm>
- LLLW (ORNL-WM-008) - <http://www-internal.ornl.gov/ORNL/directives/data/wm/wm008.htm>
- Haz/Mixed (ORNL-WM-005) - <http://www-internal.ornl.gov/ORNL/directives/data/wm/wm005.htm>

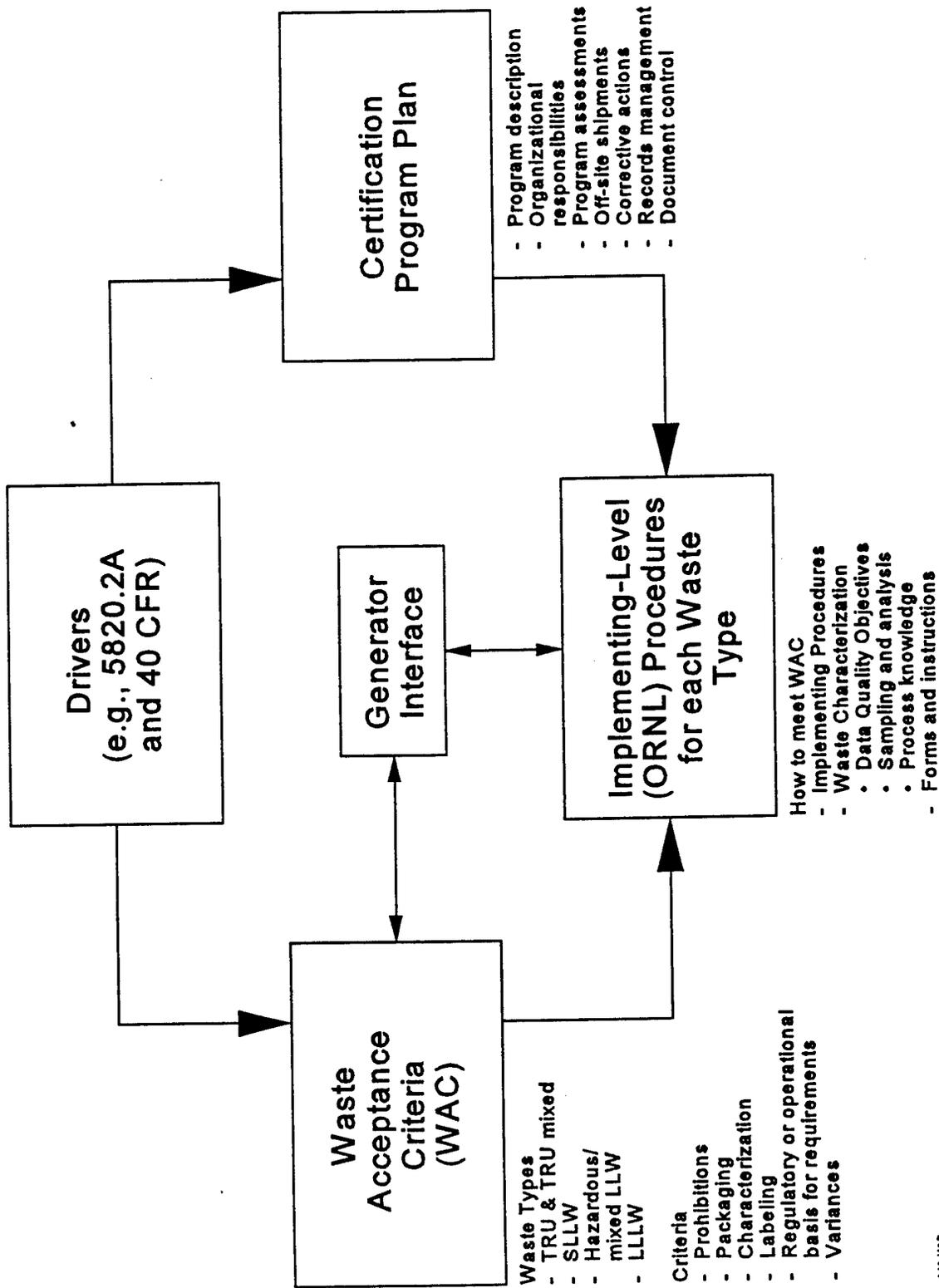


Figure 1. ORNL Waste Certification Program Model

815-HAR

The generator interface function is an ORNL Waste Certification Program option that is being implemented to support the waste generators with their waste characterization and management responsibilities. This function is currently being provided by the Waste Coordination Team (WCT). Various levels of generator interface services ranging from basic service (accepting properly characterized and packaged waste) to full service (providing total support to generators in meeting the WAC requirements) will be available for individual generators or generator groups. The level of service will be determined on a case-by-case basis with the generating organization.

The support level and the associated cost of generator interface will be outlined in a Memorandum of Understanding between individual generators or generating organizations and Waste Management. WCT personnel will be assigned to generators on the basis of the level of support desired and the types of waste they generate. WCT personnel will be available to provide a wide variety of services to the generator, including completing waste profile descriptions, assisting with characterization and process knowledge requirements, packaging, arranging transportation of waste, assisting with or managing waste accumulation areas, assisting with pollution prevention, and supporting audits and assessments.

3.2 CERTIFICATION PROCESS

Certification of waste is accomplished through the joint efforts of waste generators, Waste Management personnel, and the Waste Certification Coordinator. The cornerstone of the waste certification process is that individual waste packages will no longer be certified. The Waste Certification Program is implemented through the process identified in Fig. 2. The generator properly characterizes and packages the waste and completes the forms. Waste and forms are inspected, checked and verified by Waste Management. Before accepting waste at a TSDF, Waste Management provides controls for acceptance. The first point of control is the review of the waste description forms supplied by the generator and verification that applicable WAC requirements have been met. Routine waste inspection of containers will be conducted to verify form information prior to waste acceptance. Some waste containers will undergo an additional inspection control point at the Waste Examination and Assay Facility (WEAF). This inspection may include nondestructive examination (NDE) to ensure that prohibited waste materials are not included in waste packaging; the inspection may also verify certain waste characteristics. TRU waste may be subjected to nondestructive assay in addition to NDE. After the final inspection or control point is completed, the waste profile descriptions become the quality records for that particular waste package. Periodic surveillances (self-assessments) will be conducted on the program to verify that the process is meeting plan objectives. The program assessment process is coordinated by the Waste Certification Coordinator (see section 6). Certified waste is waste that has been confirmed to comply with receiving facilities' WACs under this certification program.

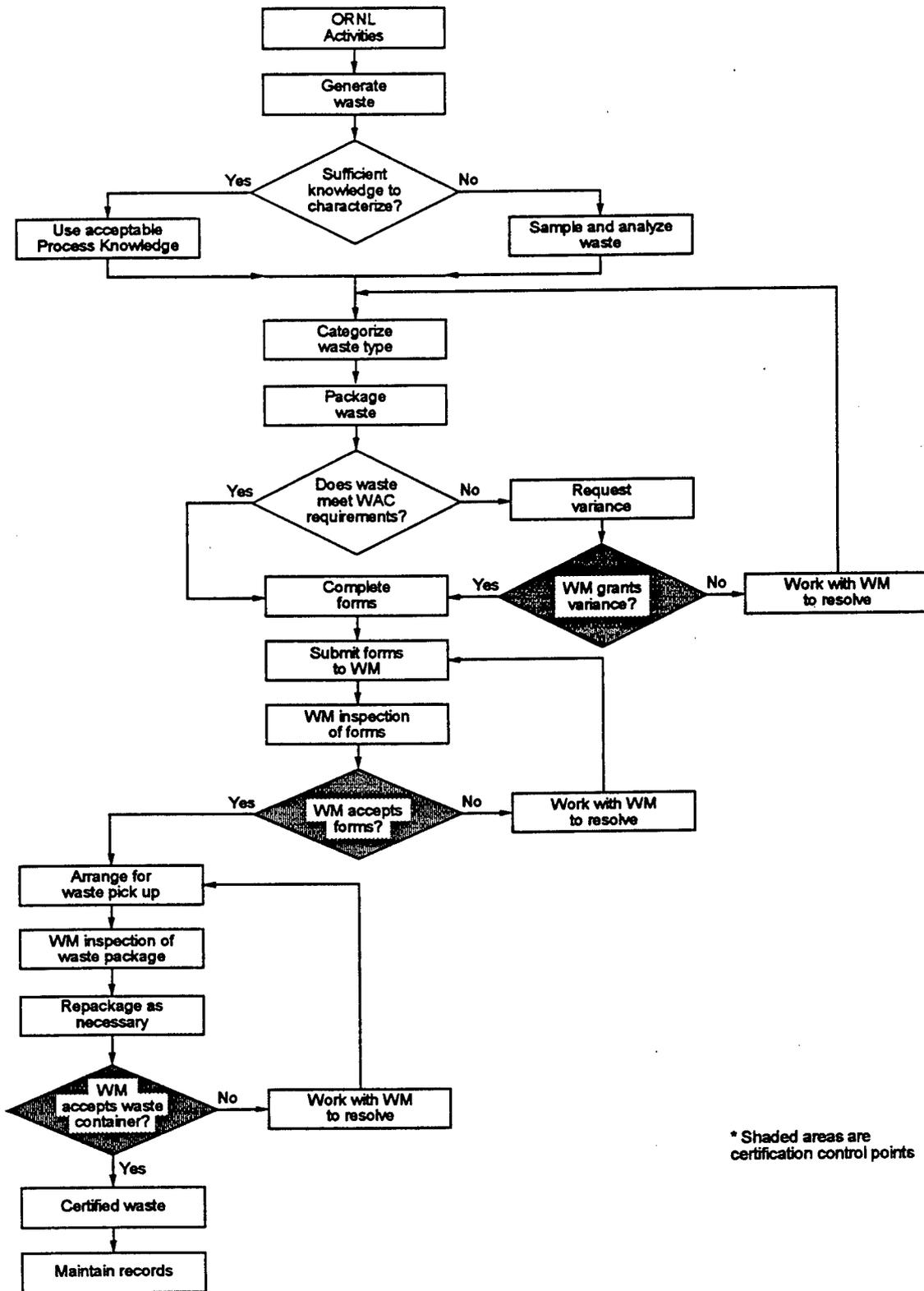


Figure 2. Certification Activities

4. ORGANIZATIONAL RESPONSIBILITIES

Figure 3 shows the organizational responsibilities for the waste certification program.

4.1 ORNL WASTE CERTIFICATION COORDINATOR

The ORNL Waste Certification Coordinator (WCC) is responsible for the overall coordination of the program. The Coordinator reports through the Associate Director of the Office of Environment, Safety, and Health. Specific responsibilities include the following:

- overseeing and maintaining the waste certification program;
- communicating program requirements and any changes through the Waste Certification Home Page (http://www.ornl.gov/OQPI/wcp/wc_prog.htm);
- coordinating and participating in the certification program audits;
- establishing waste certification training requirements;
- validating compliance with program procedures and documents;
- coordinating the surveillance program;
- conducting surveillances;
- verifying implementation of corrective actions for identified issues;
- reviewing changes made to WACs and implementing procedures; and
- certifying waste for off-site shipments.

4.2 WASTE MANAGEMENT ORGANIZATION

The Waste Management Organization is responsible for the following:

- preparing and maintaining WACs and implementing procedures;
- communicating WAC changes to WCC;
- collecting waste from generators;
- verifying compliance with WAC requirements;
- approving variance requests to the WACs;
- operating on-site TSDFs and maintaining required records for TSDF activities;
- ensuring that off-site WAC requirements are met;
- conducting divisional self-assessments;
- coordinating and contracting with off-site TSDFs;
- participating in annual waste certification audits;
- implementing WCP training program;
- overseeing the generator interface function; and
- appointing WCT personnel.

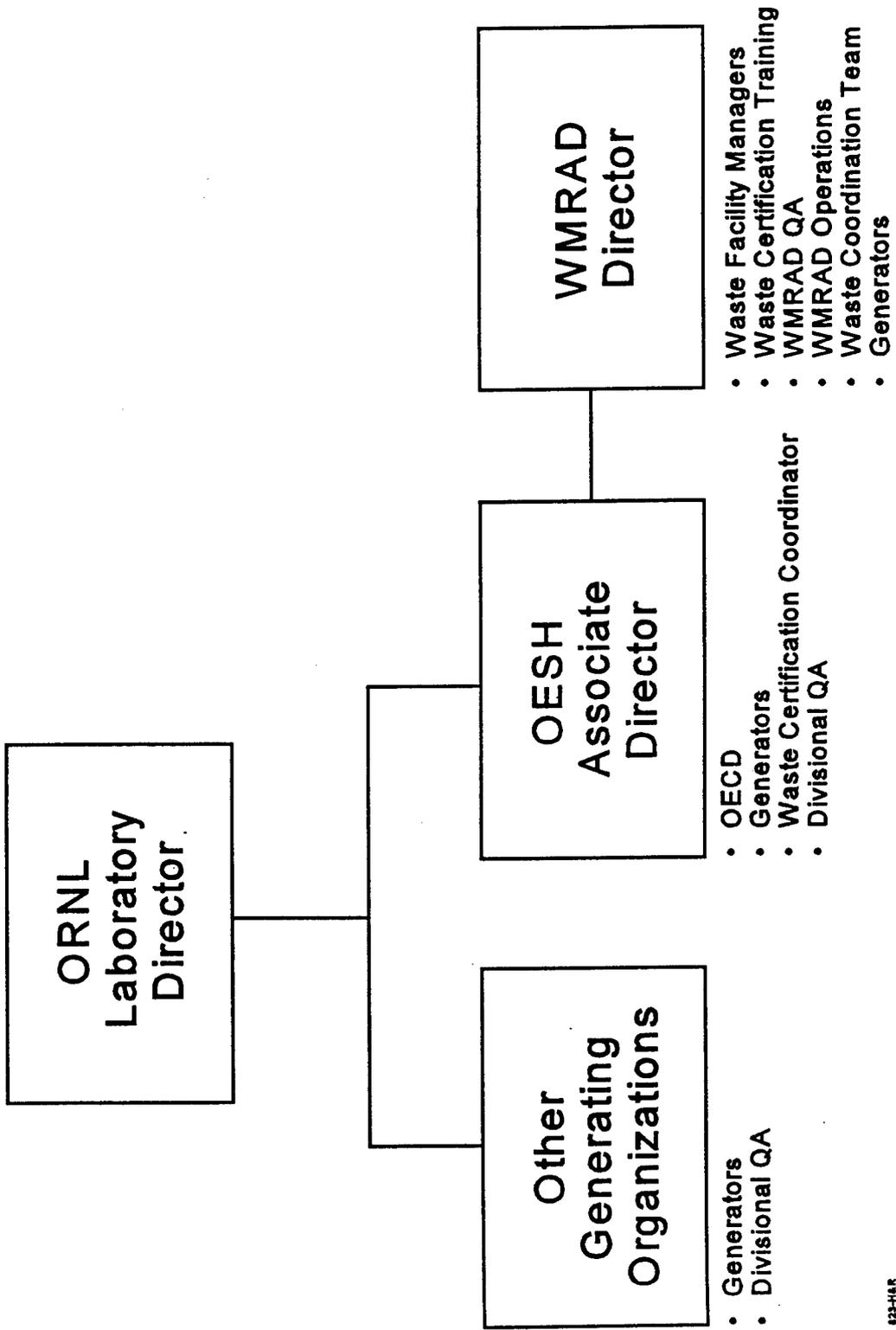


Figure 3. Organizational Chart

Specific responsibilities for the WCT is expected to be established on a case-by-case basis through the use of a Memorandum of Understanding between the generator and Waste Management. The primary responsibility of the WCT will be to assist the waste generators in meeting their certification responsibilities (Sec. 4.3). This includes notifying generators of changes to WAC requirements. In addition, WCT personnel may be asked to provide the following services:

- 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.

4.3 WASTE GENERATORS

Within the waste certification program, waste generators are responsible for the safe management of waste until it is transferred to Waste Management.¹ Generating organizations may assign a divisional generator interface person to provide support similar to that available from the WCT. These generator interface personnel support generators in meeting their certification responsibilities. As part of the certification program, generators have the following responsibilities:

- attending waste certification and waste characterization training as appropriate to their operation;²
- properly characterizing, segregating, handling, categorizing, labeling and packaging the waste per implementing procedure requirements;
- providing complete, accurate information on waste description forms;
- meeting all 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 until waste is accepted by Waste Management; and
- conducting divisional self-assessments.

4.4 OFFICE OF ENVIRONMENTAL COMPLIANCE AND DOCUMENTATION

The Office of Environmental Compliance and Documentation (OECD) will be responsible for the following:

¹ Generator responsibility/liability does not end with waste pick-up by WMRAD. Under RCRA, TSCA, and CERCLA, generator responsibility never ends.

² Refer to Section 5 and the WCP Training Program (<http://oecdwsrv.oecd.ornl.gov/landERIN/trngplan/Trngplan.htm>)

- reviewing WACs and implementing procedures;
- participating in an annual certification program audit;
- providing guidance on permitting and regulatory compliance issues; and
- reviewing and approving compliance-oriented variances to WAC requirements.

4.5 QUALITY ASSURANCE

Divisional Quality Assurance personnel are responsible for the following:

- scheduling and completing periodic surveillances in their area of responsibility;
- coordinating divisional surveillances through the Waste Certification Coordinator;
- providing surveillance results to the Waste Certification Coordinator 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. TRAINING

All waste generators are required to complete the Phase I WCP training. Phase I is a general awareness training available on the Web (<http://train01.wmd.ornl.gov/wmrad/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.

Generator interface personnel (including WCT personnel and divisional generator interface personnel) are required to complete Phase II WCP training. Phase II training includes an overview of the WCP, indepth study of applicable program documents, and specialized training such as Rad Worker I, RCRA waste characterization, storage/90 day area, DOT, and no-rad added. Generator interface personnel will also complete site-specific access training as appropriate for their assigned work areas. This training will include class attendance and successful completion of exams.

6. PROGRAM ASSESSMENTS

The waste certification program will be validated through an audit of the entire program. This audit will be conducted annually for the four WACs 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 OECD, Waste Management, the generating organization(s), Quality Assurance, and other areas as deemed necessary by the ORNL Waste Certification Coordinator.

7. CORRECTIVE ACTIONS

Corrective actions will be developed for all deficiencies identified during waste certification program audits or assessments. A corrective action report will be prepared to document actions taken. These corrective actions will be reviewed and concurred by the WCC. All activities associated with corrective actions will be conducted in accordance with existing ORNL corrective action procedures. Program deficiencies will be corrected without interruption of the ongoing program.

8. RECORDS MANAGEMENT

Program documents, which provide evidence of compliance, will be maintained. The primary repository for these documents will be the Waste Management and Remedial Action Division Document Management Center. These records will be held a minimum of five years or as directed by applicable regulations or DOE requirements. At a minimum, records will include the following:

- waste description forms and supporting information;
- final assessment reports;
- final corrective action reports;
- completed surveillance reports;
- WAC variance or exemption approvals;
- WEAf inspection reports;
- waste packaging inspection reports;
- procurement waste packaging specifications; and
- off-site shipping papers.

9. DOCUMENT CONTROL

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

When the existing procedures require revisions, and as new 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. At least once every five years, all related plans, WACs, and procedures will be reviewed for relevancy and revised as necessary.

10. PILOT PROGRAM SCHEDULE

A pilot of the WCP is scheduled to begin April 14, 1997. The pilot is expected to last 12 months. During that period, four program assessments will be conducted. Improvements will be made to the WCP as they are identified in the program assessment. The auditable WCP is scheduled to begin in April 1998.

11. REFERENCES

1. ORNL Compliance with Hazardous/Low-Level Mixed Waste Acceptance Criteria, ORNL-WM-005 (<http://www-internal.ornl.gov/ORNL/directives/data/WM/wm005.htm>).
2. ORNL Compliance with Solid Low-Level Mixed Waste Acceptance Criteria, ORNL-WM-006 (<http://www-internal.ornl.gov/ORNL/directives/data/WM/wm006.htm>).
3. ORNL Compliance with Transuranic and Alpha-Contaminated Waste Acceptance Criteria, ORNL-WM-007 (<http://www-internal.ornl.gov/ORNL/directives/data/WM/wm007.htm>).
4. Procedure for Discharging Waste to the ORNL Liquid Low-Level Radioactive Waste, Process Waste, and Nonradiological Wastewater Treatment Facilities, ORNL-WM-008 (<http://www-internal.ornl.gov/ORNL/directives/data/WM/wm008.htm>).
5. Waste Acceptance Criteria for Hazardous and Mixed Waste Treatment and Storage Facilities at the Oak Ridge National Laboratory, WM-SWO-404 (<http://www-internal.ornl.gov/ORNL/directives/data/wm/wmswo404.htm>).
6. Waste Acceptance Criteria for Solid Low-Level Waste Treatment, Storage, and Disposal Facilities at the Oak Ridge National Laboratory, WM-SWO-505 (<http://www-internal.ornl.gov/ORNL/directives/data/sllwwacl.htm>).
7. Waste Acceptance Criteria for Transuranic and Alpha-Contaminated Waste Storage Facilities at the Oak Ridge National Laboratory, WM-SWO-506 (<http://www-internal.ornl.gov/ORNL/directives/data/wm/truwac.htm>).

8. Waste Acceptance Criteria for the Liquid Low-Level Waste System, Process Waste Treatment Plant, and Nonradiological Wastewater Treatment Plant at Oak Ridge National Laboratory, WMRA-WPCPP-201 (<http://www-internal.ornl.gov/ORNL/directives/data/wm/wpcpp201.htm>).

INTERNAL DISTRIBUTION

1. J.F. Allred
2. B.R. Appleton
3. P.T. Barton
4. F.E. Bertrand
5. B.A. Bervan
6. L.C. Cain
7. D.F. Craig
- 8-12. N.S. Dailey
13. L.B. Dunlap
14. K.G. Edgemon, Jr.
15. D.W. Frazier
16. R.G. Gilliland
17. H.A. Glover
18. D.C. Gregory
19. J.L. Hammontree
20. F.C. Hartman
21. J.N. Herndon
22. J.R. Hickey
23. S.G. Hildebrand
24. P.B. Hoke
25. E.C. Jones
26. S.B. Kennedy
27. M.W. Kohring
28. F.C. Kornegay
29. E.H. Krieg, Jr.
30. M.A. Kuliasha
31. R.C. Mason
- 32-37. B.C. McClelland
38. D.W. McDonald
39. L.E. McNeese
40. T. Myrick
41. J.M. Norman
42. C.E. Oliver
43. R.C. Orrin
44. J.E. Phillips
45. M.L. Poutsma
46. D.E. Reichle
47. J.B. Roberto
48. B.M. Ross
49. M.J. Saltmarsh
50. R.B. Shelton

- 51. A.M. Shirley
- 52. C.S. Sims
- 53. R.F. Sincovec
- 54. D.R. Stallions
- 55. J.O. Stiegler
- 56. J.H. Swanks
- 57. A.W. Trivelpiece
- 58. R.I. Van Hook
- 59. D.S. Zill
- 60. OECD Document Management Center
- 61. WMRAD Document Management Center
- 62-63. Central Research Library
- 64. Document Reference Section
- 65-66. Laboratory Records Department
- 67. Laboratory Records Department - RC
- 68. ORNL Patent Office

EXTERNAL DISTRIBUTION

- 69-70. S.L. Good, Waste Management and Technology Division, Department of Energy, Oak Ridge Operations Office, P.O. Box 2001, Oak Ridge, Tennessee 37831-8620
- 71. Office of Assistant Manager for Energy Research and Development, Department of Energy, Oak Ridge Operations, Oak Ridge, Tennessee 37831
- 72. L.A. Hofman, H&R Technical Associates, Inc., P.O. Box 4159, Oak Ridge, Tennessee 37831-4159
- 73-82. Office of Scientific and Technical Information, P.O. Box 62, Oak Ridge, Tennessee 37831 (10-NTIS)

M98054263



Report Number (14) ORNL/TM--13288-Rev.1

Publ. Date (11) 199705

Sponsor Code (18) DOE/EH, XF

UC Category (19) UC-~~000~~, DOE/ER

19980720 097

DTIC QUALITY INSPECTED 5

DOE