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Hazardous Waste Minimization Program

Oak Ridge National Laboratory

B. D. Barkenbus
V. L. Turner

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HAZARDOUS WASTE MINIMIZATION PROGRAM

Oak Ridge National Laboratory

B. D. Barkenbus
V. L. Turner

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ABSTRACT

This document is prepared in response to the requirement of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976 and the Hazardous and Solid Waste amendments of 1984. It presents a plan reflecting the commitment of Oak Ridge National Laboratory (ORNL) management to the reduction of hazardous waste generation and minimization of generated waste to reduce impacts on human health and the environment. Economically practicable waste reduction/minimization techniques including waste abatement; recycling; good housekeeping; and in-plant treatment are discussed. Methods used to promote awareness and recognition of the waste minimization effort are also discussed.

1. HAZARDOUS WASTE MANAGEMENT AT ORNL

This document describes ORNL's efforts to abide by the waste minimization amendment of the November 1984 reauthorization of RCRA by the U.S. Congress. It will be revised periodically to incorporate new procedures for the program.

ORNL continues to be involved in many challenging and diverse research programs. Frequently, in the course of these programs, various quantities of radioactive and nonradioactive hazardous wastes are generated. Figure 1, Hazardous Waste Flowchart, is included to give a clear understanding of the types of hazardous wastes, mixed wastes, their respective sources, and disposal methods used at ORNL.

At ORNL, the Department of Environmental Management (DEM) of the Environmental and Occupational Safety (E&OS) Division is responsible for the compliance requirements and establishing procedures for the handling, storage, and disposal of hazardous wastes, as well as personnel training requirements. The hazardous waste field work such as collection, transportation, classifying, packaging, and storage is done by the Waste Operating Group (WOG), Waste Management Section of the Operations Division (OD). The Plant and Equipment (P&E) Division's labor crew assists WOG in pickup and transportation activities.

The waste management responsibilities of persons, departments, and divisions are described in the responsibilities section of each waste procedure in various ORNL manuals (Environmental Protection, Operations, Health Physics, etc.), and in Martin Marietta Energy Systems Inc. Policy Procedures.

2. HAZARDOUS WASTE REDUCTION

ORNL is a facility that is heavily dependent on chemicals for research activities and in the operation of basic Laboratory services. During 1983 and 1984, ORNL generated approximately 200,000 pounds of hazardous waste each year. The situation is complicated by the large variety of chemical wastes in small quantities that are typical of laboratory-type operations. The handling of hazardous wastes is further complicated by the presence of radioactivity in some of the waste.

ORNL DWG 86-9240R

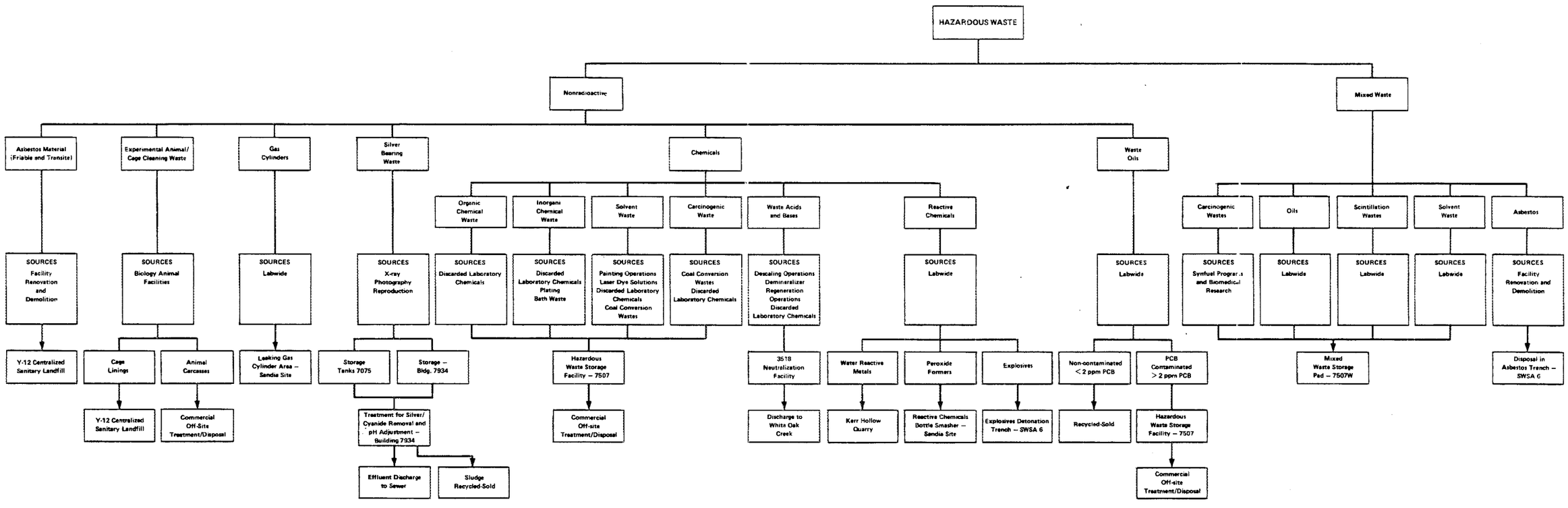

Fig. 1. Hazardous waste flowchart

Since the establishment of the Hazardous Materials Management Program at ORNL, various measures have been taken by management to minimize waste generation or to decrease waste through recycling and/or treatment. Special emphasis in the area is mandated by the November 1984 RCRA amendments. Efforts are in progress to create and document meaningful reduction of hazardous wastes.

Waste minimization efforts at ORNL can be viewed in two phases. Phase I consists of reducing hazardous wastes at the generation level. This phase of the waste minimization program includes the following concerns which will be addressed throughout this document:

- Policy;
- Management Support/Administrative Controls;
- Needs Analysis;
- Cost Incentives;
- Regulatory Compliance;
- Technical Input;
- Good Communication;
- Implementation; and
- Evaluation.

Phase II involves further waste reduction through more sophisticated technical methods involving conversion of hazardous wastes to less toxic wastes and decreasing the volume of specific waste streams through design changes. During Phase II, more comprehensive strategies will be used, possibly involving higher costs. Further development of improved or new technologies will be implemented. Process modification for reduction of waste will be evaluated more extensively. As segregated waste streams are studied more thoroughly, plans to implement new waste minimization programs will be proposed.

2.1 POLICY

The policy of ORNL is to protect employees, the public, and the environment against adverse effects of hazardous materials and wastes. This policy is established and communicated through written procedures and

policy statements. The hazardous waste minimization policy statements, issued by the President of Energy Systems Inc., ORNL Director, and the Environment and Safety Activities (ESA) organization reflect this commitment.

This policy will be implemented by a Hazardous Waste Minimization Program, which is under the direction of the Nuclear and Chemical Waste (N&CW) Programs. The program will include the following major steps:

- Identify all waste streams, review and make recommendations for procedures, provide incentive mechanisms for new ideas/procedures, and information exchange;
- Establish effective planning and procurement practices;
- Set goals to meet quantitative reduction levels;
- Establish a baseline with which to compare waste minimization progress;
- Prioritize possible waste treatment options according to cost and environmental problems;
- Develop waste reduction/elimination plans for each waste stream;
- Assess economic, technical, and regulatory feasibility of plans; and
- Implement those plans that meet cost/benefit goals.

2.2 GOALS

ORNL's goal is to reduce the volume and toxicity of hazardous waste generated. Each division will establish its annual goals for reduction of generated waste by January 15 of each year. Each division will also be responsible for reviewing its goals monthly and reporting expected changes. All division yearly goals, as well as adjusted monthly goals, will be compiled and an overall ORNL goal will be set by January 30 of

each year by a designated task group (see Section 2.3 and 2.4 below). This task group will be responsible for providing to each division a monthly summary of waste generated and a summary of projected and revised goals for that calendar year. The upcoming goals will include quantitative minimization values with respect to the baseline waste generation rates (see Section 6.0). ORNL will decrease hazardous waste generation by a significant percent each year. This reduction goal does not include the disposal of each division's chemical backlog, unusual events, or wastes from new projects. Specific plans will be developed by ORNL upper management to deal with these areas. Effective measures will be applied to account for and to minimize wastes that fall under these categories.

2.3 MANAGEMENT SUPPORT/ADMINISTRATIVE CONTROLS

The policy of ORNL, Energy Systems, and the Department of Energy requires that all hazardous wastes be handled, disposed of, and/or treated in a manner designed to reduce their amount and/or toxicity. This policy requires that ORNL upper management accept waste volume/toxicity reduction as a measure of performance.

Establishment of the Hazardous Waste Minimization Committee (HWMC) is one of the major steps in the waste minimization program. A letter sent to the division directors from the Laboratory Director announced the establishment of this committee and asked for the enlistment of a representative from each division (Appendix A). This committee consists of members from N&CW Programs, the E&OS Division, and the OD. It plays a major role in the implementation of the waste minimization program. The HWMC meets periodically with divisions' Waste Minimization Representatives (WMRs) to share information, solve problems, and review the program. It oversees the activities of the waste minimization subcommittees, and provides guidelines for enforcement of program steps.

The HWMC members met with the representative of each division individually in October 1985 and distributed the following information:

- A summary of the division's hazardous wastes picked up for disposal during 1984;

- A summary, by division, of the pounds of waste disposed of in 1983, and 1984; and

- A copy of an article entitled "Less is Better."

2.4 IMPLEMENTATION

This document is intended to provide a framework for the implementation of the waste minimization program at ORNL. Overall responsibility for implementation of the waste minimization program at ORNL rests with the N&CW Programs and laboratory management. To assist with the implementation and ongoing activities of the waste minimization program, tasks with task leaders will be formed (Figure 2) and their responsibilities will be identified by the N&CW Programs. Each task leader will undertake a certain segment of the program (e.g., procurement, training, procedures). Each task leader will be appointed from the HWMC/divisions responsible for the specific area covered (see Sections 3.3.1, 3.4, 4, and 7). A task leader and task members will be appointed by the end of January 1987.

2.5 DOCUMENTATION

An annual comprehensive report of each division's waste minimization efforts and established goals for the following calendar year will be submitted to the HWMC by January 15 of each year. Representatives who are appointed from each division to work with the HWMC will be responsible for preparing this report. HWMC will incorporate these reports into an annual ORNL Waste Minimization report. The results will also be used in reports to the state and EPA. In addition to an annual report, monthly progress reports will be prepared by each division WMR to provide continuous feedback and maintain the vitality of the program. A Waste Minimization Report form will be prepared by the HWMC. This form will be

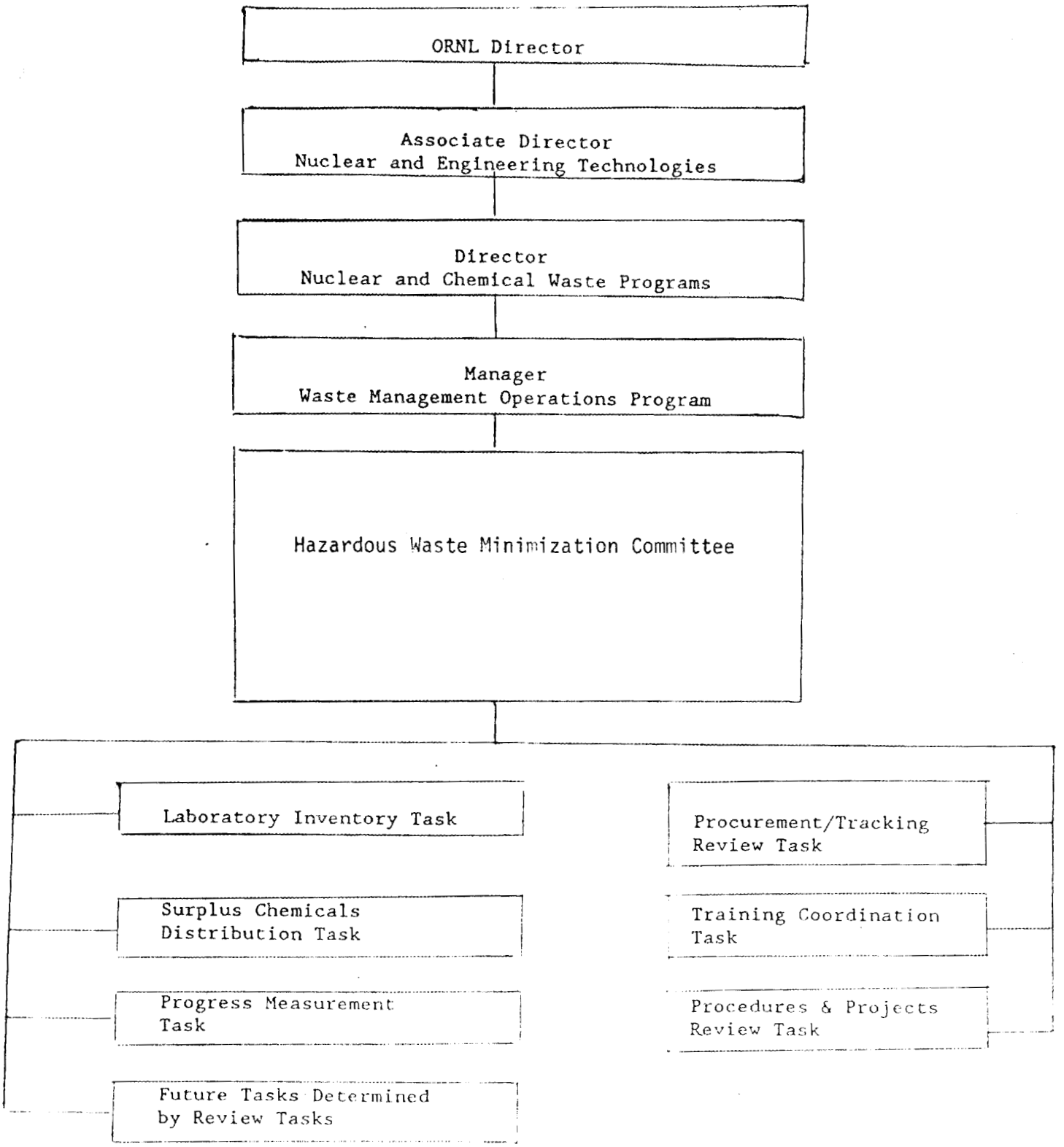

Fig. 2. Organization for hazardous waste minimization

used for monthly progress reports to evaluate projects, goals, and describe waste minimization efforts. This report will also explain the discrepancies shown in the monthly division waste summary report received from the task group of the OD (see Section 2.2). A special task group in the HWMC will evaluate these reports.

2.6 SPECIAL INCENTIVES

Consideration will be given to establishment of an awards program with special emphasis on waste minimization and contributors will be recognized.

Cost incentives (see Section 6) will be used effectively to discourage the unnecessary generation of waste.

3. WASTE MINIMIZATION MEASURES

3.1 WASTE ABATEMENT

Examination of existing processes to discover methods to reduce waste volume and/or toxicity is a major element of the program. This may include substitution of a new chemical and/or process for an old one. Most mixed wastes presently can only be stored. Proper procedures will be applied for its segregation to minimize increases in its quantity. The study of waste abatement measures and their implementation within divisions will be the responsibility of the Division Directors. Each division will be encouraged to set up committees and/or study groups beginning in FY-1987 to evaluate each one of their processes/methods from the waste minimization perspective and lay out waste reduction plans for new projects. Each division will be encouraged to survey and collect ideas from its members and submit reports to the HWMC. The WMRs will play a major role in organizing activities, contacting responsible personnel, and interfacing with the HWMC.

3.2 RECYCLING

Recycling is implemented through reuse, swapping, and reclamation methods. Recycling through reuse of some waste streams, as is or with minor modifications within the Laboratory, is encouraged. These efforts save on disposal costs and facilitate conservation. The waste categories discussed below are included in recycling plans.

Unopened bottles of chemicals with unexpired dates are placed in proper storage cabinets in the storage building. Their present availability is cited in a list circulated monthly among divisions. Users will contact WOG of the OD to obtain these chemicals. Alternatively, some chemicals may be donated to nearby colleges or agencies. After several months in the waste storage area, unopened containers of chemicals with unexpired dates will be either returned to the Laboratory Chemical Stores or disposed of in accordance with procedures.

Whenever possible, waste chemicals will be utilized by ORNL processes in which chemical purity is not a problem. For example, certain leftover acids and bases are presently used in the Neutralization Facility. The WOG of the OD will inquire among the divisions for processes that can use certain waste chemicals. Procedures will be developed for these practices. The established ORNL rules for transportation of hazardous materials will apply in these transactions.

Where feasible, wastes will be sold through national waste-exchanges. Large and continuous waste streams will be considered for resale options following their identification by the HWMC. The OD will explore resale/donation possibilities.

Nonradioactive and uncontaminated waste oils with concentrations of < 5 ppm of polychlorinated biphenyls (PCBs) have previously been sold to an off-site contractor. Recently, the limit for PCBs was administratively reduced to < 2 ppm. However, in the future whenever possible, waste oils generated at ORNL will be used on site for fuel or sent to K-25 for use in the TSCA/RCRA incinerator.

Another method of recycling will be through the swapping of chemicals that are kept on the shelves to be used by researchers. Divisions that keep various chemicals on the shelves will be alerted by their supervision to the possibilities of borrowing to reduce purchasing and disposal costs. Users of chemicals who need a very small amount, will be

encouraged to borrow from within or outside of their division instead of buying or opening up larger quantity bottles.

When additional databases are ready for use by Laboratory personnel or a new waste minimization procedure is desired, DEM will issue an Environmental Protection Information Bulletin to inform personnel and encourage the acceptance of new methods.

The reclamation of material through simple, small-scale, unit processes, such as solvent distillation, is also encouraged in this effort.

3.3 GOOD HOUSEKEEPING

Good housekeeping refers to practices used to facilitate waste minimization by sorting, tracking, taking preventive measures against leaks and spills, and encouraging careful transfer operations and efficient process management. Good housekeeping also refers to measures taken to promote the safe use and storage of hazardous materials. For example, waste management practices in handling spills can also affect the volume of hazardous waste generated. Knowledgeable, well-trained, and safety-conscious personnel can help prevent spills and consequent waste generation.

3.3.1 Control of Procurement

Procurement controls can prevent additional waste generation due to excessive inventories and by reducing the toxicity of chemicals by substitution. Research experiments do not generally have the flexibility for substituting different chemicals in a process, but chemicals procured for routine cleaning, processing, and maintenance can be changed in many cases.

One of the most important aspects of procurement control is ensuring that chemicals are procured in the smallest quantities required. Research and small process type operations, typical of the Laboratory, generally require very small quantities of chemicals. Many common commercial chemicals are generally available in container sizes geared toward larger users and are priced to provide cost savings for purchasing larger quantities.

Therefore, many research programs order chemicals in larger quantities than necessary to receive the price break. Resultant excessive inventories created by over-procurement cause storage problems and eventually result in the generation of additional waste. Historically, as much as 40 percent of the chemical bottles requiring disposal in laboratory clean-outs have been unopened. Therefore, procedures must exist requiring the requester to consider the quantity of certain chemicals requested to ensure that excessive material is not procured. To facilitate this control, each division will be required to review new purchase orders and compare them to their present stock.

To prevent excessive inventories, Central Chemical Stores, maintained at ORNL by the Finance and Materials (F&M) Division, routinely reviews chemicals stocked to determine if the division requesting the material still requires the materials and quantities previously specified. F&M Division will make more frequent contacts with the divisions to reinforce this practice. Division Directors will be responsible for divisional requests for the purchase of these chemicals.

The Procurement Review Task group will review the overall chemical procurement program and initiate any changes necessary to ensure an effective program is in place.

3.3.2 Tracking of Chemicals

Officially, all hazardous materials enter ORNL through F&M Division channels. The Hazardous Materials Tracking System (HMTS) is designed to track the materials from procurement to disposal. The problem of direct purchases of chemicals by personnel or entry of free samples bypassing the HMTS will be evaluated and appropriate measures will be taken for its control. The HMTS has the capability to use the information already available in the procurement and stores databases. HMTS is designed to allow access to an up-to-date inventory file. However, this system is not yet in full operation. Presently, only the waste disposal module is in full operation.

Waste disposal is initiated by the use of a request form specifically designed for use by the HMTS. When hazardous waste is ready to be picked up for disposal, Laboratory personnel are required to detail the waste on the "Request for Disposal Form" and forward this form to OD. Waste information is entered into the waste tracking files via program HMTS03. This program has the necessary file maintenance capability, record query, and report generation functions for effective waste management. Periodically when hazardous waste is shipped off-site for disposal, the database is utilized to generate a detailed printout of waste for shipment and to update the database to indicate where the individual waste items were disposed. Additional reports available via the Hazardous Waste Inventory Program include (1) annual report, (2) division generation totals, and (3) waste handling bills.

Detailed information on the capabilities of the HMTS is available in ORNL/CSD/TM-236, ORNL Computerized Hazardous Materials Tracking System.

3.4 IN-PLANT TREATMENT

It is Laboratory policy to provide treatment/disposal technologies to reduce waste volume and toxicity on-site; ORNL has several on-site disposal/treatment methods. For example, gas cylinders, explosives, and reactives are disposed on-site; a mercury purification process is utilized at ORNL (4500S, E-251) to recover contaminated mercury; the Neutralization Facility, Building 3518, neutralizes acids and bases which then can be discharged to a nearby creek; and the ORNL silver recovery process recovers silver-bearing sludge from photographic waste solutions.

When the Procedures and Projects Review Task studies ORNL hazardous waste streams and identifies large ORNL processes, it will provide recommendations for feasible treatment technologies to the HWMC. With these recommendations, the HWMC will assess the feasibility of plans and will implement favorable technologies with upper management support.

4. PROCEDURES AND GUIDELINES

The waste minimization program goal relative to procedures and guidelines is to ensure that all procedures related to hazardous materials and waste handling address means to minimizing waste. To accomplish this goal, a network of divisional and ORNL-wide procedures must exist.

Policies on proper procurement, management, and disposal of chemicals are issued to give guidance to each staff member. To comply with these policy procedures, there exists various waste operating, disposal, and inspection procedures at ORNL. There are two ORNL manuals that cover the main elements of the waste management program. These are: ORNL Environmental Protection Manual (EPM) and Hazardous Materials: Management and Control Manual. The tables of contents from these manuals are included as Appendix B to identify waste management procedures.

During the normal operation of the Hazardous Materials Management Program, a wide range of procedures are required. Procedures cover the procurement, storage, treatment and disposal aspects of normal operating activities. These procedures are intermeshed with the procedures required by Industrial Hygiene for procurement, use, and inventory. The result is a comprehensive set of documents for ensuring that the daily operations meet all EPA, DOT, DOE, and OSHA regulations.

Storage procedures and guidelines are directed at ensuring that inventories of hazardous materials are handled in a fashion that ensures no excess waste is generated as a result of storage practices. A significant percent of the waste generated may be the result of a spill, leak or accident involving some type of hazardous materials resulting from improper storage activities. Waste generated by a spill can be minimized by prevention or by proper response, containment, and cleanup. The Spill Prevention, Control, Countermeasures, and Contingency Plans for ORNL, ORNL-5946, outlines procedures. In addition, all Laboratory procedures will include preventive measures against spills.

Whenever bulk quantities of materials are purchased and stored on-site, the potential exists for contamination with an unwanted chemical, water, or radionuclides, thereby rendering the material useless for the intended purpose. Unless the material can be used for some other

function, an unexpected amount of waste will be generated. This type of problem is intended to be mainly controlled by the storage and procurement procedures and guidelines. This area will be continually monitored to determine if additional procedures or controls are necessary.

The Procedures and Projects Review Task group will review and evaluate procedures to ensure that the goals of the waste minimization program are met. Task group recommendations will be directly fed into the HWMC.

5. REVIEW OF NEW AND EXISTING FACILITIES

All new and existing facilities are reviewed under the ORNL Environmental ALARA program, which is a Laboratory-wide effort applicable to each person, project, activity, and operation at ORNL. It is administered by the E&OS Division and carried out by the DEM. It is implemented at all stages of an ORNL project from the initial planning to the final decommissioning. Reviews are documented at one of three levels: as an Action Description Memorandum (ADM), Activities Description Memorandum (AcDM), or Environmental ALARA Memorandum (EAM).

5.1 NEW FACILITIES

Currently all new facilities, including facilities required to treat or store hazardous materials, have an ADM prepared as part of the National Environmental Policy Act (NEPA) process. This document covers both construction and operation phases of the facility. As part of this document, the design and operation of the facility are reviewed to ensure that present and future risk to human health and the environment is minimized. This process explores opportunities and possibilities for waste minimization. The completed ADM is signed by the Engineering Division, the operator or user division, and by the DEM as an agreement on what steps will be taken to ensure that any risk is minimized. Each facility's construction and operation is inspected by the DEM to ensure compliance with the ADM agreement document.

5.2 EXISTING FACILITIES

A review of all existing activities and facilities is also conducted. This review results in the development of either an AcDM or EAM which describes a facility's operation and steps being taken to ensure that any risk to human health and environment is minimized. During the development of these documents, problems with the existing operation or facility may be uncovered. Waste minimization is factored into this process. Potential problems are documented as part of the AcDM or EAM and a schedule for correction is adopted. As in the procedure for the ADM, the AcDM and EAM are signed by the operating or user division and the DEM.

As the emphasis of research programs at ORNL change, it is probable that both physical and operational changes will take place within any specific facility. When this occurs, the operational or user division will notify the DEM and the appropriate changes and review of the ADM, AcDM, or EAM will be made. By use of this type of documentation and agreement method, all facilities and operations handling hazardous materials are designed and operated in a manner that ensures minimization of waste generation.

Review of the use of hazardous materials and their potential effects on worker health is the responsibility of the Industrial Hygiene Department. A separate Industrial Hygiene Manual is published which documents all Industrial Hygiene procedures.

5.3 INTERIM MEASURES

The success of the program is contingent on completion of the review and documentation process. However, until the process is complete, certain interim measures are being taken to identify any major problems with the existing facilities. This action will consist of general review of Laboratory facilities by the HWMC and WMRs. This review is to locate and resolve any major problem which might exist or contribute to waste generation. DEM will take measures to facilitate correction of any problem areas identified. Problem areas appear to be mainly related to the improper use, storage or disposal of laboratory chemicals. Procedures for this type of handling and disposal problem have been issued in the EPM.

6. COST INCENTIVES

Regardless of the administrative procedures in place or the education and training provided, the most effective method to ensure waste minimization is through cost incentives. Higher cost to handle and dispose of waste will mean that researchers starting a program must give the waste handling cost serious consideration. Beginning with Field Task Proposals prepared for FY 1989, waste management costs associated with the work will be specified in the proposals. The cost incentive aspect of the waste minimization program will be closely coupled with the tracking of hazardous materials.

6.1 BILLING SYSTEM

The new billing system is set up for the primary purpose of building waste minimization incentives. Waste generators will be charged not only for accrued disposal, but will also pay higher rates for more toxic wastes. Earlier, generators were charged the same rate for all types of wastes and were not charged for waste-related activities such as classification of waste, inspections, etc.

According to the new program, each generator will receive two charges for hazardous waste handled. The first charge will be a pickup/storage charge to cover ORNL's cost for maintaining the hazardous waste management program. For pickup/storage, each generator will be charged according to weight. Some of the basic costs included in pickup/storage are as follows:

- Cost for classification of waste for processing Request for Disposal Forms;

- Cost of maintaining the hazardous waste tracking database, the hazardous waste database, the surplus chemicals database, and the available chemicals database;

- Costs for auditing, training, and maintaining procedures/ guidelines;

- Operational costs such as labor, packaging materials, safety equipment, and mechanical equipment; and

- Costs of emergency/spill response involving a particular division.

To determine rate schedules for pickup/storage of hazardous waste, projection of the expected amount of hazardous waste (baseline waste generation) is determined for each division. The overall waste management cost is divided by the total ORNL baseline generation rate to determine the rates needed to maintain the Hazardous Waste Management System. At the completion of the year, any surplus funds will be returned to the generators based on their relative amounts of waste generated.

The second charge will be the commercial charge billed to ORNL for treatment and disposal of the waste. To eliminate unknown costs and to allow the ORNL Waste Management Program to operate smoothly, a long-term commercial treatment/disposal contract has been established. This allows the Waste Management Program to issue the commercial cost schedule to ORNL generators and thereby eliminates unknown cost.

7. COMMUNICATIONS

Communications are an integral part of the hazardous waste minimization program. To ensure the success of the program, personnel in the Laboratory will be trained in the philosophy and requirements of this program. The training process will be an ongoing effort. The objectives of communications are to reduce waste generation and toxicity by: (a) creating an awareness of waste reduction practices, (b) familiarizing personnel with ORNL wastes and processes, and (c) providing a mechanism to transfer new waste minimization techniques/practices among ORNL personnel.

Two channels of communication, education/training and bulletins/signs, will be used in this program. The HWMC will form a Training Coordination task group to set up and coordinate a training program. This task group will identify training needs, set objectives for the program, define methods to be used, document training, and evaluate the activities periodically to determine if program objectives are being achieved.

Presently, the HWMC undertakes the communication responsibilities. The WMRs serve as liaison between their division and the committee. The HWMC members met several times individually and as a group with the division WMRs to familiarize them with the waste minimization amendment and measures to be taken to minimize ORNL waste.

7.1 EDUCATION/TRAINING

A general framework for education/training will include off-site course participation, in-house courses, and presentations. When training in waste reduction is offered by experts in universities, government, industrial companies, and other organizations, ORNL personnel are encouraged to attend. In-house ORNL courses may be offered to Laboratory personnel. The Training Coordination task group of HWMC will identify dates and topics for training and seminars. ORNL staff with a waste reduction technology background will be encouraged to give lectures/seminars. Personnel who are familiar with waste management practices and procedures at ORNL will give presentations to divisions on existing databases, procurement, and tracking procedures. Outside speakers will be invited to ORNL to address Laboratory personnel on various waste minimization measures. Various spill prevention and management procedures will be emphasized through talks by the Laboratory Shift Supervisors and spill response managers throughout the Laboratory.

Methods of training will range from regular classroom teaching and discussion format to programmed instruction through audio and videotapes.

7.2 BULLETINS/SIGNS

Bulletins, signs, and posters will be used as instruments to inform and alert target personnel to waste reduction concepts. The Training Coordination task group will decide on effective subject areas to use as a theme in these sensitization efforts.

8. AUDIT REVIEWS

8.1 AUDIT PROCESS

The waste minimization program will be reviewed at various levels by several groups. In the early phase of this program, criteria will be flexible and qualitative in nature. It will include organization of the program, implementation of good housekeeping measures, and small-scale reduction practices. However, once recommendations are set by the task groups and proper ORNL-wide waste reduction technologies have been established by upper management, criteria will include quantitative targets involving projected and actual waste reduction progress. The Progress Measurement Task will be responsible for ensuring that an annual audit is conducted of the Waste Minimization Program. The audit team will be selected or approved by the Environmental and Safety Activities (ESA) Organization and the ORNL Quality Assurance Department. Audit criteria will be developed by the audit team and approved by the ESA.

APPENDIX A

LETTER ANNOUNCING HAZARDOUS WASTE MINIMIZATION COMMITTEE

MARTIN MARIETTA

Internal Correspondence

MARTIN MARIETTA ENERGY SYSTEMS, INC.

September 13, 1985

Division Directors

Minimization of Hazardous Chemical Waste Volumes and Toxicity

The November 1984 action by Congress to reauthorize the Resource Conservation and Recovery Act of 1976 put forward several significant additions to the original act. One of these revisions, which is outlined in Paragraph 224 (see Attachments 1 and 2), will place additional requirements on the generators of hazardous chemical waste (HCW). Briefly, generators must have in place a waste reduction plan (volumes and toxicity) prior to shipment of waste for disposal after September 1, 1985. Further, this plan must be quantitative and trackable.

Staff from the Operations Division (F. J. Homan, L. C. Lasher, and K. G. Edgemon) and the Environmental and Occupational Safety Division (V. L. Turner) have been assigned to help the waste-generating divisions develop a waste minimization plan. I am asking each Division Director to assign someone to work on this task and provide the name of that person to Mr. Homan (4-7042). The goal is to have a workable plan in place by early September. This plan might include the following elements:

- Avoidance of Waste: Experience has shown that the HCW discarded by some laboratories includes as much as 50 percent by volume of unopened bottles of chemicals. Effective planning and timely procurement of chemicals should reduce this waste stream to essentially zero.

- Substitution: Substitution of nonhazardous or less toxic chemicals where possible.

- Establishment of a Baseline: We will be looking for a baseline figure for the Laboratory to compare minimization progress against.

- Goal Setting: Projection of percentage volume reduction versus time for the next few years. This will admittedly be difficult but will very likely be imposed, especially if no visible progress in minimization occurs.

Thank you for your assistance. I look forward to successful completion of this requirement.

Herman Postma

Herman Postma (6-2900)

HP:FJH:rlg

Attachments: (1) Paragraph 224 of 1984 RCRA Ammendments
(2) Summary of HCW Minimization Requirements

cc/att: W. R. Bibb, DOE-ORO
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APPENDIX B

SAMPLES OF TABLES OF CONTENTS FOR WASTE MANAGEMENT PROCEDURES

ENVIRONMENTAL PROTECTION MANUAL

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PROCEDURE		LATEST ISSUE
1.0	ASBESTOS	07/15/85
2.0	OILS (NON-PCB)	08/01/81
3.0	MERCURY	08/01/81
4.0	POLYCHLORINATED BIPHENYLS	08/01/81
5.0	COOLING TOWER SLUDGE	08/01/81
6.0	SUBSTANTIAL RISK NOTIFICATION UNDER THE TOXIC SUBSTANCES CONTROL ACT	10/15/85
7.0	ENVIRONMENTAL PROTECTION OFFICERS	09/01/84
8.0	DISPOSAL PROCEDURES FOR HAZARDOUS WASTE MATERIALS	10/01/84
9.0	AIR EMISSION PERMIT	08/01/81
10.0	ENVIRONMENTAL ASSESSMENTS	07/15/81
11.0	INSPECTION AND TESTING PROCEDURE FOR DIKES	04/30/82
12.0	PRUDENT PRACTICES FOR STORAGE OF NONRADIOACTIVE HAZARDOUS CHEMICALS IN LABORATORIES	07/16/84
13.0	DIKING CRITERIA	TO BE ISSUED LATER
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16.0	CENTRALIZED SANITARY LANDFILL	10/15/83
17.0	SOLID WASTE DISPOSAL	TO BE ISSUED LATER
18.0	LIQUID WASTE DISPOSAL	05/15/85
19.0	MANIFEST FOR TRANSPORT OF HAZARDOUS WASTE	06/01/84
20.0	REVIEW PROCESS FOR THE ENVIRONMENTAL PROTECTION MANUAL'S PROCEDURES	06/20/85
21.0	CONTROL OF EXPLOSIVES	TO BE ISSUED LATER
22.0	ENVIRONMENTAL REVIEW AND DOCUMENTATION PROGRAM	12/16/85
23.0	ENVIRONMENTAL ALARA AND CHECKLIST	TO BE ISSUED LATER

Hazardous Materials - Management and Control Manual

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