



RML Waste Management Plan

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I. Introduction

This Waste Management Plan (WMP) details policy regarding the safe handling and disposal of all waste and general refuse generated at the facility. Incinerator regulations require the WMP to identify the approach for separating certain components of solid waste from the laboratory waste stream to reduce the amount of toxic emissions from incinerated waste. This plan also addresses separation of waste streams and waste handling procedures necessary to maintain a safe and healthful work environment and meets the requirements of incinerator operation permits, hazardous waste regulations, and legal settlement agreements.

The Rocky Mountain Laboratories (RML) of the National Institute of Allergy and Infectious Diseases (NIAID) studies infections of animals and humans and host responses to the infections. Many of the agents studied at RML are pathogenic and must be handled under appropriate biosafety containment levels and procedures. RML is committed to maintaining a safe and healthful environment for employees and the surrounding community. As a matter of policy, all laboratory, biohazard, animal, and hospital, medical, infectious wastes generated at the facility are incinerated on site. All wastes having a known or potential biohazard characteristic must be sterilized by either autoclaving or chemical decontamination before incineration. This redundancy significantly reduces the chance of accidental release of infectious agents and eliminates concern of sending lab waste to a landfill. The incinerator operates under a Title V Air Quality Operating Permit #OP-2991-03. The permit requires that

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RML comply with the environmental regulations contained in 40 CFR Part 62, Subpart HHH for Hospital/Medical/Infectious Waste Incinerators). The requirement for a waste management plan is specifically addressed in 40 CFR 62.14432.

The work at RML utilizes many materials that enter the waste stream as lab wastes or wastes containing a hazardous characteristic. The nature of the material as well as applicable rules and regulations dictate how these wastes should be handled, stored and/or disposed. Recycling programs have been implemented and, wherever possible, will be expanded to minimize volumes of waste disposal.

II. Waste Streams

A summary of wastes generated at RML and the final disposition of these wastes is presented below:

- Biohazard Wastes (sterilized and incinerated)
 - Biological cultures
 - Blood products
 - Body fluids
 - Infectious agents
 - Medical/Infectious waste
 - Pathological waste
- Hazardous Chemical Waste including mercury containing equipment (shipped to licensed treatment, storage and disposal facilities)
- Group II Wastes (General Refuse shipped to Licensed Class II Landfill)
- Group III Wastes (Construction/Demolition Debris, inert Group III shipped to Licensed Class II Landfill, all other Group III Waste shipped to Licensed Class III Landfill)
- Low-Level Radioactive Waste (Disposal methods include decay in storage, sanitary sewer disposal for decayed short half-life liquid waste, incineration, and occasional transport to a licensed radioactive waste disposal site.)
- Recycled Waste
 - Aluminum cans and clean foil
 - Cardboard
 - Electronic Waste (e.g., computers, laptops, cell phones, blackberries)
 - Cathode Ray Tubes
 - Magazines/catalogs
 - Metal/Steel

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- Newspapers
- Plastics
- Printer Cartridges
- Used Oil
- Antifreeze
- White Paper
- Wood Pallets
- Universal Wastes (also recycled), including:
 - Spent Fluorescent Bulbs/Lamps
 - Batteries (includes all types): Lead-acid batteries, AAA, AA, C, D, button cell, 9-volt, and all others, both rechargeable and single use
 - Waste excess pesticides
 - Waste mercury containing devices
- Storm Water Runoff (managed on site)
- Surplus/Excess Equipment (if there are no hazardous components)
- Wastewater Effluent (discharged to Hamilton Wastewater Treatment Plant)

III. Definitions

Biohazard Waste includes the following as defined in 40 CFR 62 Subpart HHH:

Biologicals: preparations made from living organisms and their products, including vaccines, cultures, etc., intended for use in diagnosing, immunizing, or treating humans or animals or in research pertaining thereto.

Blood products: any product derived from human blood, including but not limited to blood plasma, platelets, red or white blood corpuscles, and other derived licensed products, such as interferon, etc.

Body fluids: liquid emanating or derived from humans or animals and limited to blood; dialysate; amniotic, cerebrospinal, synovial, pleural, peritoneal and pericardial fluids; and semen and vaginal secretions.

E-waste: electronics such as computers, televisions, video game consoles, monitors, VCR/DVD players, cell phones, printers and scanners, fax machines, and other electrical devices.

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Infectious agent: any organism (such as a virus or bacteria) that is capable of being communicated by invasion and multiplication in body tissues and capable of causing disease or adverse health impacts in humans.

Medical/infectious waste: any waste generated in the diagnosis, treatment, or immunization of human beings or animals, in research pertaining thereto, or in the production or testing of biologicals that are listed in paragraphs (1) through (7) of this definition.

(1) Cultures and stocks of infectious agents and associated biologicals, including: cultures from medical and pathological laboratories; cultures and stocks of infectious agents from research and industrial laboratories; wastes from the production of biologicals; discarded live and attenuated vaccines; and culture dishes and devices used to transfer, inoculate, and mix cultures.

(2) Human pathological waste, including tissues, organs, and body parts and body fluids that are removed during surgery or autopsy, or other medical procedures, and specimens of body fluids and their containers.

(3) Human blood and blood products including:

(i) Liquid waste human blood;

(ii) Products of blood;

(iii) Items saturated and/or dripping with human blood; or

(iv) Items that were saturated and/or dripping with human blood that are now caked with dried human blood; including serum, plasma, and other blood components, and their containers, which were used or intended for use in either patient care, testing and laboratory analysis or the development of pharmaceuticals. Intravenous bags are also included in this category.

(4) Sharps that have been used in animal or human patient care or treatment or in medical, research, or industrial laboratories, including hypodermic needles, syringes (with or without the attached needle), Pasteur pipettes, scalpel blades, blood vials, needles with attached tubing, and culture dishes (regardless of presence of infectious agents). Also included are other types of broken or unbroken glassware that were in contact with infectious agents, such as used slides and cover slips.

(5) Animal waste including contaminated animal carcasses, body parts, and bedding of animals that were known to have been exposed to infectious agents during research, production of biologicals or testing of pharmaceuticals.

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(6) Isolation wastes including biological waste and discarded materials contaminated with blood, excretions, exudates, or secretions from humans who are isolated to protect others from certain highly communicable diseases, or isolated animals known to be infected with highly communicable diseases.

(7) Unused sharps including the following unused, discarded sharps: hypodermic needles, suture needles, syringes, and scalpel blades.

Multi-Hazardous waste is waste that contains any combination of chemical, radioactive, or biological hazards. Any waste stream that presents more than one type of hazard will require special management consideration because the selected treatment technology appropriate for one type of waste may not be appropriate for the other types. Multi-hazardous waste will be evaluated on an individual basis and the constituent that poses the greatest hazard will be given priority.

Pathological waste: waste material consisting of only human or animal remains, anatomical parts, and/or tissue, the bags/containers used to collect and transport the waste material, and animal bedding (if applicable).

Discarded oil includes spent/dirty oil from oil filters and equipment used on site.

General Refuse (according to the Title V permit) consists of household type garbage such as foodstuffs, lunchroom wastes, and drink containers; office refuse such as discarded paper, plastic and cardboard containers; and packaging and shipping materials from incoming shipments of laboratory supplies and equipment. Such refuse shall not include electronic equipment such as computer monitors, hazardous chemicals, spent batteries, spent fluorescent bulbs, mercury containing thermostats, switches, bulbs, pesticides, and plastics containing polyvinyl chloride (PVC). In response to a court settlement decision in October of 2004, RML agreed to no longer incinerate general refuse as of October 2005. The definition of general refuse as defined in the Title V Permit is presented in Section III.

Group II Wastes as defined in ARM § 17.50.503(1)(a)(i)(ii) include decomposable wastes and mixed solid wastes containing decomposable material but exclude regulated hazardous wastes. Examples include, but are not limited to, the following: (i) municipal and domestic solid wastes such as garbage and putrescible organic materials, paper, cardboard, cloth, glass, metal, plastics, street sweepings, yard and garden wastes, digested sewage treatment sludge, water treatment sludge, ashes, dead animals, offal, discarded appliances, abandoned automobiles, and hospital and medical facility wastes, provided that infectious wastes have been rendered non-infectious to prevent the danger of disease; and (ii) commercial and industrial solid wastes such as packaging materials, liquid or solid industrial process wastes which are chemically or biologically decomposable, crop residues, manure, chemical fertilizers, construction and demolition wastes,



asphalt, and emptied pesticide containers which have been triple rinsed or processed by methods approved by MT DEQ.

Group III Wastes as defined in ARM § 17.50.503(1)(b)(i)(ii) and (iii) include wood wastes and non-water soluble solids. These wastes are characterized by their general inert nature and low potential for adverse environmental impacts. Examples include, but are not limited to, the following: (i) inert solid waste such as unpainted brick, dirt, rock and concrete; (ii) clean, untreated, unglued wood materials, brush, unpainted or untreated lumber and vehicle tires; and (iii) industrial mineral wastes which are essentially inert and non-water soluble and do not contain hazardous waste constituents.

Hazardous chemicals include unused, discarded chemicals in original containers that are specifically listed in 40 CFR 261.33(e), (f) or spent reagents which have one or more of the following characteristics as specified in 40 CFR 261, Subpart C:

- Ignitability
- Corrosivity
- Reactivity
- Toxicity

Household type garbage includes foodstuffs, lunchroom wastes and drink containers.

Incinerator ash is residue remaining from combustion of wastes in the facility incinerator.

Lead-acid batteries are batteries removed from vehicles, uninterrupted power supply (UPS systems) and equipment.

Low-level radioactive waste includes waste material that contains radioactive nuclides emitting beta or gamma radiation, or both, in concentrations or quantities that exceed applicable federal or state standards for unrestricted release. Low-level radioactive waste is not high-level radioactive waste, spent nuclear fuel, or by-product material as defined by the Atomic Energy Act of 1954 (42 U.S.C. 2014(e)(2)).

Office refuse is primarily discarded paper and plastic products from offices.

Packaging and shipping materials are cardboard, plastic and wood as well as Styrofoam, bubble wrap, boxes, cartons, cases, crates, pallets, etc. from incoming shipments of laboratory supplies and equipment.

Refrigerants are CFCs and HCFCs removed from discarded refrigerators, freezers, and air conditioners; or from repair work on such units.

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Sewage disposal includes domestic sewage as well as laboratory, cooling, and operational wastewater discarded into the municipal sewer system.

Scrap metal is waste generated from electrical, plumbing, HVAC and metal fabrication projects.

Storm wastewater runoff is rain and snow water drainage from roofs and pavement.

Surplus/Excess Equipment is equipment that is no longer needed, obsolete or worn out and is to be disposed of by recycling or as trash.

Universal wastes, as regulated by 40 CFR 273 and the State Air and Waste Management Bureau, are specific hazardous wastes destined for recycling and are listed above under Waste Streams.

IV. Responsibilities – Every person has a responsibility to handle waste in a safe and environmentally conscientious manner.

Principal Investigator or senior lab technician is responsible for ensuring that all workers in the laboratory attend appropriate training. Mandatory training is provided by RML safety and environmental staff annually on topics including: Blood Borne Pathogens, Fire Safety, Security, Hazard Communication, Waste disposal/recycling, Hazardous Waste Management and the Laboratory Safety Plan. Responsible PI or senior lab technician must ensure that biohazard materials, hazardous chemicals, radioactive waste and office refuse are segregated, decontaminated, stored and handled safely and properly before removal from the laboratory. Responsible person must also ensure that proper containers and equipment are provided to handle wastes and must instruct workers as to the requirements for disposal of liquids via the sanitary sewer.

Laboratory workers attend new employee training provided by RML safety and environmental staff. Post- and pre- doctoral fellows, guest researchers, laboratory technicians, special volunteers, students, etc. are responsible for following the instruction of the principal investigator or senior lab technician concerning waste handling, decontamination, storage and disposal. Lab workers are responsible to ask for guidance and laboratory policy on waste handling if instruction has not been obvious.

Authorized users (as designated by the Radiation Safety Committee) are to ensure that all radioactive wastes generated by work under their supervision are disposed of in accordance with the RML Radiation Safety Manual and the specific radioactive material use protocol.

RML Safety, Bio-safety, and Radiation Safety Committees are responsible for providing guidance, maintaining compliance with and oversight of the Waste Management Plan.

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Janitorial contractors are responsible for the collection and packaging of non-recyclable general refuse (i.e. office type waste) into on site dumpsters designated for landfill disposal. 1. Wastes generated in labs that do not contain a biological, radiological or chemical hazard are transported to Building 23 and stored for incineration. Cardboard is transported to staging areas by janitors.

Incinerator operators are responsible for disposal of all wastes delivered to Building 23 for incineration. These individuals collect and transport, after appropriate disinfection and/or packaging, all biohazard material for incineration (with exception to certain pathological wastes generated in BSL-4 laboratories which are transported according to detailed safety protocols under direct supervision of designated individuals to Building 23). They collect, transport, store and record the inventory of hazardous chemical wastes in Storage Shed #1.

RML Recycling Coordinator is responsible for collecting and arranging for recycling pickups for paper, pallets, cardboard, all types of batteries, spent fluorescent bulbs, antifreeze and used oil. The RML Recycling Coordinator compacts and bales cardboard in a baling machine in the recycle area of Building 22 and manages the compaction dumpster for general refuse located west of Building 23.

Environmental Engineer is responsible for the implementation and updates of the Waste Management Plan, the recycle program and overall compliance issues associated with the Air Quality Operating Permit, Title V Operating Permit, and EPA regulations for hazardous waste generators. Oversees proper disposal of construction debris, hazardous chemical waste, wastewater discharge, hazardous wastes generated from lead abatement projects, spill prevention and countermeasure program, and other environmental concerns.

ORF Maintenance personnel are responsible for collecting and storing wastes properly for proper disposal or recycling, including the following:

- Wastes for recycling – used oil, antifreeze, lead-acid batteries, used fluorescent bulbs, wood pallets, scrap metal, etc. **Note:** In order to maintain disposal records, information such as date of storage, quantity, etc. must be provided to the RML Recycling Coordinator.
- Group III wastes – including wood, brick, dirt, concrete, etc.
- Refrigerants (CFCs & HCFCs) - Maintenance staff, with EPA Sec. 608 Universal Certification, service all equipment that utilize refrigerants. As much as possible refrigerants are recovered and reused in equipment on site. Refrigerants that are mixed or contaminated with oil or water are recovered and sent to an EPA licensed processor. When equipment that contains refrigerants is disposed, the refrigerant shall be drained, and an EPA required sticker shall be affixed to the equipment prior to placement in scrap metal dumpster.

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- Chemicals, solvents, paints, herbicides and pesticides must be collected and properly managed as hazardous waste.

Property Officer is responsible for collection, storage, recycling or disposal of excess equipment.

V. Waste Minimization

Procedures for minimizing waste:

- Reduce, reuse and recycle to maximum extent feasible
- Do not order more chemicals, solvents, paint, etc. than necessary to meet needs
- Order in the smallest practical sized unit
- Check on availability in other labs for materials that are only needed occasional
- List excess chemicals available for sharing on the RML Chemical Inventory and Redistribution Program available on the RML Intranet.
- Try to find materials/methods that allow use of less hazardous materials
- If practical, copy and print documents in duplex to save paper

VI. Recycle Program

RML has implemented a recycle program that includes the items described below:

Aluminum cans and clean foil: Recycle collection containers for aluminum are available in all buildings. Clean foil is placed inside clear plastic bags and placed in aluminum collection containers.

Cardboard: Collapsed cardboard is placed near a garbage can for janitorial staff to transport to the proper collection area. The cardboard compactor and baler are located inside Bldg. 23.

Lead acid batteries: Lead-acid batteries are collected and stored in the recycle section of Bldg. 23 for transfer to a recycling center. The RML Recycling Coordinator and the Environmental Engineer track and file all recycling information.

Magazines and shiny paper: Collection containers for magazines, soft-bound journals and colored paper are available in core administrative and break room areas.

Newspapers: Collection containers for newspapers are available in core administrative and break room areas.

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Plastics: RML recycles only plastic that is labeled #1 PETE/PET, and micropipette tip boxes/lids that are generally #5 plastics. Collection containers for recyclable plastics are available in core administrative and break room areas. Other plastic materials labeled #2, #3, #4, #5, #6, and #7 should be put in the general refuse waste stream.

Printer Cartridges: RML recycles printer components including laser jet cartridges, inkjet cartridges, transfer rollers, and imaging units. Recyclable printer components are placed in the replacement components container and then placed in the Bldg. 28 or Bldg. 1 Mail Room for pickup by the RML Recycling Coordinator.

Refrigerants (CFCs & HCFCs): Maintenance staff, with EPA Sec. 608 Universal Certification, service all equipment that utilize refrigerants. Refrigerants are drained from equipment prior to disposal, and equipment is labeled appropriately. As much as possible refrigerants are recovered and reused in equipment on site. Refrigerants that are mixed or contaminated with oil or water are recovered and sent to an EPA licensed processor. When necessary, information on refrigerants shipped off site is provided to the Environmental Engineer for filing in RML disposal/recycle records.

Used oil: Lubricating oil from vehicles, other equipment and vacuum diffusion pump oil are collected and temporarily stored for use as off-site heating oil or recycling. The Incinerator Operator arranges for shipment to an EPA licensed oily waste processor or facility approved to use the waste for heating oil. The Environmental Engineer maintains files of RML disposal records.

White paper: White paper recycling containers consist of “We Recycle” blue bins. Also, collection cans are available on each floor of the main lab, in office buildings, graphics, and other buildings on campus. The RML Recycling Coordinator empties the containers weekly.

Wood Pallets: Pallets are collected and stored until there is sufficient number to warrant pickup by a recycle vendor.

Universal Waste (UW): Are collected and stored until there is sufficient quantity to warrant pickup by a UW/recycling vendor. Staging areas include:

- Spent batteries (other than lead-acid) including nickel, cadmium, etc. Collection containers are located in the Building 1 Mail Room, the Building 28 Mail Room and the recycle area of Bldg. 23.
- Lead-acid batteries are storing in the recycling area of Bldg. 23.

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- Suspended or cancelled pesticides which are subject to recall, or pesticides which are collected or managed as part of a waste pesticide collection program are stored in Hazardous Waste Shed #1.
- Mercury containing electric thermostats, thermometers, etc. are stored in Hazardous Waste Shed #1.

Spent electric tubes or bulbs that contain hazardous heavy metals are stored in the Bldg. 23 recycling area.

UW Requirements:

- Do not dispose, treat, or dilute universal waste onsite.
- Do not accumulate universal waste for more than 1 year from the date that the universal waste is generated or received from another handler.
- Must manage UW so as to prevent releases. Must immediately contain any releases of UW. If releases are hazardous waste, must manage as hazardous waste.
- Must mark containers to identify specific type of UW.
- Must demonstrate length of time any UW is in accumulation.
- Must inform employees regarding proper handling of UW and emergency procedures.
- May ship only to other UW Handlers, UW Destination Facilities or foreign destination.
- Must comply with U.S. DOT shipping requirements.

A licensed recycling contractor transports and disposes of universal waste according to EPA regulations. Records are filed in the RML Environmental Office. Although mercury containing equipment (e.g., old thermostats and thermometers) can be handled as a universal waste, RML manages them as part of the hazardous chemical waste stream.

RML collects, segregates and stores spent fluorescent bulbs and batteries in separate containers that are labeled appropriately. Packaging and storage of used bulbs consists of a bulb crushing and mercury vapor collection system and is accomplished in such a manner to prevent breakage and release of contaminants to the environment. UW containers are dated to demonstrate storage on site does not exceed one year.

VII. Waste Collection, Segregation and Storage

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Biohazard Material: All wastes, having a known or potential biohazard characteristic, must be sterilized by either autoclaving or chemical treatment before transport to a collection point. Biohazard wastes must be double-bagged in plastic red or orange biohazard bags that are marked with the international biohazard symbol and labeled with name, room number, and phone number before autoclaving. After sterilization, laboratory workers must place the waste bags in a clear plastic bag and deliver to a designated collection point. The Incinerator Operator picks up the waste and transports it to Building 23 for incineration. Collection receptacles are leak proof with close fitting lids.

Sharps must be disposed of in containers that are leak-proof, rigid, puncture-resistant and "tamper-proof" (made so that they cannot be reopened without difficulty). Needles and syringes shall not be clipped, bent, broken, sheared or recapped prior to disposal. Medical waste sharps containers must be labeled with "Biohazard" or "Infectious Waste," and the international biohazard symbol. All sharps containers must be autoclaved before transport to Building 23 for incineration.

Dead animals and/or animal tissues for disposal that cannot be placed directly into the incinerator must be double-bagged in black/brown plastic bags and then placed in a specified freezer in Building 13, 23, 25, 28 or 32 for storage until incineration.

Dead animal and/or animal tissue generated in BSL-4 laboratories are managed according to a detailed, specific safety protocol. AUTOCLAVED CARCASSES ARE transported only in closed, leak-proof primary and secondary containers under direct supervision. Once delivered to Building 23 carcasses must undergo immediate incineration.

Group II waste: Waste streams that fall into the Group II waste category are addressed separately in this plan. Much of this material is disposed of on site by incineration.

Group III waste: Small quantities of inert Group III wastes are either recycled or placed in a dumpster to be hauled to a Class II solid waste landfill. Large quantities of waste resulting from major renovation projects are hauled directly to licensed Class II or licensed Class III landfills.

Hazardous chemicals: Each lab is responsible to keep hazardous chemical waste streams separate as much as possible. Chemicals and spent reagents are collected in satellite collection containers with a yellow "RML Hazardous Waste Tag" attached. Each disposal into the container must be recorded on the tag. When a container is approximately three quarters full or when it has been in use for 90 days contact the Incinerator Operator at NIAIDRMLWasteManagement@mail.nih.gov or 406-363-9219 for removal to Storage Building. **Waste generators are responsible for complying with 90-day storage limit.**

Unused hazardous chemicals for discard are kept in their original containers, collected and stored by the Incinerator Operator in Storage Building SS4. The Incinerator Operator keeps a monthly



log of hazardous chemicals placed in storage. The Environmental Engineer ensures that the hazardous chemical waste storage meets all the requirements for RML status as a “small quantity generator”. Hazardous chemical waste is manifested and shipped at least every 270 days. The RML EPA ID number is MT3750802875.

The RML Ethidium Bromide Policy requires special storage, handling and disposal practices for ethidium bromide wastes.

Household Type Garbage: Discarded foodstuffs, paper products that cannot be recycled, plastic plates, drink containers and utensils are collected in trashcans lined with clear plastic bags. The janitorial contractor takes the clear waste bags to designated dumpsters for transport to the landfill. Aluminum cans and clean foil are collected separately to be recycled.

Incinerator Ash: Ash is removed from the incinerator once per week. To reduce dust, the ash is sprayed with water as it comes out of the incinerator. The heavy “paste like” mix is conveyed into a dumpster and is sent to a Class II landfill for disposal. Excess wash water laden with ash passes through a coarse strainer that catches the larger particles. The contents of the strainer are emptied into the dumpster. The wash water is passed through a 1,500-gallon ash settling tank where the remaining ash settles out and the supernatant effluent goes to the sanitary sewer. The sludge in the catch basin is pumped out twice a year by a contractor and taken to a septic wastewater treatment facility. Ash samples are collected quarterly and submitted to an independent laboratory for total sulfates, pH and TCLP metals analyses to demonstrate compliance with landfill requirements.

Leaves and grass clippings: The grounds keeping employees collect and remove lawn clippings and leaves for composting.

Low-level radioactive waste: RML is permitted to use radioactive materials under Nuclear Regulatory Commission (NRC) license number 25-01203-01 and the amendments attendant to the license. The RML Radiation Safety Manual, Section IV, WASTE DISPOSAL provides specific instructions for disposal of radioactive wastes. As much as possible, solid or liquid wastes that are contaminated with short half-life radioisotopes are stored until radioactivity is decayed out. Solid waste material remaining after contamination is decayed out and waste contaminated with minimal amounts of long half-life radioisotopes are disposed of by incineration. The RML NRC license permits incineration of radioactive waste materials according to the limitations of 10 CFR 20.1302(c), 10 CFR 20.2002 and 10 CFR 20 Appendix B. The U.S. Environmental Protection Agency (USEPA) Comply Code when applied to RML incineration shows that the facility is in compliance with the Clean Air Act limits for radionuclide emissions at the exempt level. The Title V Operating Permit and State Air Quality Permit allow incineration of low-level radioactive materials. All ash from incineration of radioactive waste is collected and stored on site. Future analysis of isotope concentrations will determine disposal options. Aqueous liquid waste contaminated with extremely low levels (<0.1



mCi) of long half-life radioisotopes or residual radioactivity from short half-life radioisotopes that have “decayed out” goes into the sanitary sewer and meets the requirements of 10 CFR 20.2003 and 10 CFR 20 Appendix B.

Office refuse: Discarded “white paper” is shredded and/or collected in separate “WE RECYCLE” containers by staff and deposited in special dumpsters for recycling. Other office waste classified as general refuse that is not recyclable is transported to designated dumpsters for disposal at the landfill.

Packaging and shipping containers: Cardboard boxes are collapsed and transported to a cardboard baler in Building 23. Packing material such as Styrofoam, “peanuts”, plastic air bags or cushioning, etc. are picked up by the janitorial contractor and taken to a compacting dumpster for transport to the landfill. ORF staff utilizes a portable compacting dumpster at varying locations. Pallets in good condition are collected, stored and recycled. Wooden crates, large wood packing boxes and broken wooden pallets are placed in a dumpster for disposal in a Class II landfill.

Sewage: RML policy strictly prohibits disposal of hazardous substances and regulated medical waste via the sanitary sewer. Treated medical waste that is still recognizable (e.g., pipette tips) are also prohibited.

RML interior drains are connected to the sanitary sewer system which is connected to the City of Hamilton wastewater treatment plant (WWTP). RML periodically contracts an independent environmental consultant to perform semiannual self-imposed wastewater monitoring in accordance with requirements of Significant Industrial User (SIU) Self-Monitoring Requirements as described in 40 CFR §403.12. Wastewater discharged from the RML facility has met the requirements established by the City of Hamilton wastewater treatment plant and the EPA Office of Wastewater Management’s “National Pretreatment Program”.

The Hamilton, Montana Municipal Code, Title 13, §13.12.290, specifies prohibitions against certain materials going into the city sewer system as follows:

1. Any liquid or vapor having a temperature higher than 150°F.
2. Any water or waste which may contain more than 100 parts per million, by weight, of fat, oil, or grease.
3. Any gasoline, benzene, naphtha, fuel oil or other flammable or explosive liquids, solids or gasses.
4. Any garbage that has not been properly shredded in a garbage disposal type unit.
5. Any ashes, cinders, sand, mud, straw, shavings, metal, glass, rags, feathers, tar, plastics, wood, manure or any other solid or viscous substance capable of causing obstruction to the flow in sewers or other interference with the proper operation of the sewage works.

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6. Any water or wastes having a pH < 5.5 or >9.0 or having any other corrosive property capable of causing damage or hazards to structures, equipment and personnel of the sewage works.
7. Any waters or wastes containing a toxic or poisonous substance in sufficient quantity to injure or interfere with the sewage treatment process, constitute a hazard to humans or animals, or create any hazard in the receiving waters of the sewage treatment plant.
8. Any waters or wastes containing suspended solids of such character and quantity that unusual attention or extreme expense is required to handle such materials at the sewage treatment plant.
9. Any noxious or malodorous gas or substance capable of creating a public nuisance.

Scrap metal: Metal resulting from demolition/renovation projects is segregated into copper, aluminum and ferrous categories. Metal resulting from general RML maintenance activities is placed in a metal recycling dumpster without segregation. Periodically, a scrap metal recycler collects the waste. Information on scrap metal shipped off site and recycling revenues is documented by the RML Environmental Engineer.

Storm water runoff: The majority of storm water runoff from pavement and roofs seeps into the ground by dispersion or by collection into stormwater management systems. The State of Montana does not require a stormwater permit for stormwater discharged from parking lots, landscaped areas and roof drains et. into surface waters or the groundwater. Stormwater discharged from industrial areas would require a permit. An industrial storm water discharge permit is not required for these discharges according to the Standard Industrial Classification (SIC) code (8071) under which RML is classified.

Surplus/Excess Equipment: Excess equipment not useable by other labs on site is turned over to the RML Property Officer who then reports and processes the equipment through official NIH channels. The NIH Property Officer determines if the item(s) are to be transferred to a different government agency, loaned to a qualified recipient or disposed/recycled as scrap. Before removal from a laboratory, all equipment designated for disposal as excess property must be certified by the owner to be free from hazards (NIH Form #2683, "Certification that Property is Free from Hazards"). Occasionally, certain pieces of laboratory equipment that are very difficult to decontaminate will be incinerated.

Equipment that generates x-rays must be disassembled such that it is permanently inoperable prior to disposal. Before disposal a "Disposition of x-ray equipment" form must be completed and provided to the Radiation Safety Officer.

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VIII. Decontamination Procedures

Wastes from Biosafety Level 1 & 2 Laboratories and Animal Rooms:

Any waste that has been in contact with biologicals, blood products, body fluids and/or infectious agents must be either autoclaved or chemically treated, as appropriate, to destroy any biohazard. Autoclaving must be done with quality assurance procedures to guarantee adequate time, temperature and steam to destroy pathological agents (use lead free steam sterilization integrator test strips in each container of the load). Chemical sterilization may be necessary in some cases. Principal investigators must determine which method, or combination of methods, will accomplish sterilization. Neutralization of TSE agents may require the use of Environ® LpH® from Steris Corp. or other appropriate chemical agents. Incineration provides the ultimate redundancy for decontamination of all pathological waste.

Biological Wastes from Biosafety Level 3 & 4 Laboratories and Animal Rooms:

The RML Biosafety Committee approves the protocol(s) for each agent studied in Biosafety Level 3 and Biosafety Level 4 (BSL-3 and BSL-4) areas. There are also general Standard Operating Procedures (SOPs) for BSL3 and BSL-4 labs. Each protocol addresses appropriate waste handling procedures to be followed for decontamination, packaging and transporting wastes to the incinerator.

IX. Disposal

After appropriate decontamination as described in §VIII above, all biohazard, pathological and hospital/medical/infectious wastes are incinerated in Building 23. The RML incinerator facility is classified and permitted by the Montana Department of Environmental Quality as a medium sized HMIWI under Air Quality Permit #2991-07 and Title V Operating Permit #OP2991-03. The primary chamber of the incinerator operates at $\geq 1340^{\circ}\text{F}$ and the secondary chamber at $\geq 1800^{\circ}\text{F}$.

General refuse is collected in clear plastic bags and placed in two compacting dumpsters for transport to the landfill.

Hazardous chemicals are packaged and transported by EPA licensed contractors to EPA licensed treatment, storage and disposal facilities.

Group II solid wastes and some Group III (Inert) wastes go to either a recycler or a landfill licensed as a Montana Class II solid waste management system.

Wastes to be recycled are delivered to collection points or are picked up by waste recyclers.

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X. Training

Laboratory Workers

All workers and researchers must receive safety training related to 29 CFR1910.1030 (Blood borne Pathogen Standard). Training subjects include:

- Universal precautions (All handling of biohazard waste shall be performed using universal precautions, even when the handler is reasonably assured that the wastes are non-infectious).
- Blood borne pathogens.
- HIV, HBV, and HCV specific information.
- Investigation and tracking of any sharps related injuries.
- Exposure information specific to their experimental protocols.

(A recombinant Hepatitis B vaccine is available, free of charge, to all RML employees who may come in contact with blood and body fluids during the performance of their duties.)

Personnel using radioactive materials are required to show proof of previous training or take radiation safety.

Hazard Communication (HazCom) training is required per OSHA 29 CFR 1910.1200 and presented annually by the safety staff.

During the annual laboratory safety refresher training, instruction concerning the RML Environmental Management System is presented. Training includes content of the Waste Management Plan as well as pollution prevention, recycling and general waste handling procedures.

HazMat Team

Members of the HazMat team meet the HazMat Technician requirements of NFPA 472 and OSHA 29 CFR 1910.120(q).

Incinerator Operators

Incinerator operators meet the operator training and qualification requirements as specified in 40 CFR 60, Subpart Ec, 60.53c.

Janitorial Staff

The Janitorial Staff is trained upon entry on duty and attends the annual safety/environmental compliance training.

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XI. Waste from Spill Cleanup

Laboratory workers are trained and qualified to cleanup routine spills of biohazardous materials and chemicals resulting from daily work in their laboratories. Specific cleanup procedures are addressed in the “RML Safety Manual” and the RML Spill Response SOP. Spill cleanup kits are available in every laboratory. Chemical spills involving hazardous substances or significant quantities are to be handled by the RML HazMat Team. The HazMat Team should also be called for chemical spills. Spills of radiological or biological material are to be overseen only under the direction of the Radiation Safety Officer or the Biological Safety Officer.

All wastes generated as a result of spill cleanup activities are treated according to the category of material spilled.

XII. Use of Recycled Products

The RML Procurement Office in compliance with FAR Part 8.7 purchases supplies available from the Jarvits-Wagner-O’Day (JWOD) program as a mandatory source. The JWOD Program provides many recycled-content, environmentally preferable, and energy efficient products.

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Appendices

Appendix A RML Contacts

Incinerator Operator/Waste Handling Contact	363-9219
RML Recycling Coordinator	200-1637
Environmental Engineer	363-9216
Biosafety Officer	363-9334
Occupational Safety & Health Manager	363-9431
IRF Biosafety Manager	375-9642
Radiation Safety Officer/Incinerator Manager	375-7467
Emergency Manager/Hazmat Team	375-9794
HazMat Team Coordinator	375-9628
Maintenance Section	363-9225

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**Rocky Mountain Laboratories Environmental
Management System (REMS)**

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**Appendix B
RML Waste Disposal Guidelines**

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RML WASTE DISPOSAL GUIDELINES

BIOHAZARDOUS WASTE – Red Bags

Any wastes generated in the lab that are known or perceived to possess a biohazard characteristic (e.g. gloves, pipette tips, culture tubes, etc). Biohazardous waste must be double-bagged, labeled with generator's name/room number, autoclaved, placed in a clear bag after autoclaving and transported by lab personnel to collection areas. Do not overfill biohazard waste bags and please limit to approx. 25 lb. Collection areas are located outside the south end of the Quad and in the Bldg. 28 "Red Bag Storage" Room 1C1008. All wastes generated in high and maximum containment areas (i.e. BSL-3 and BSL-4) are considered biohazardous wastes.

NON-BIOHAZARD LAB WASTE – Black Bags

These are any wastes generated in the lab that do **NOT** contain a biohazard (e.g. paper towels, packaging materials, etc.). Black lab waste bags used by BSL-2 labs in Bldgs. 13B, 31, the Quad, and the IRF are removed by the janitorial staff. Do NOT place gloves, pipette tips or any hazardous substances in brown/black bags.

CHEMICAL WASTE

Utilize the RML Hazardous Waste Collection Program to dispose of all hazardous chemical wastes generated by your laboratory. Drain disposal of hazardous substances is strictly prohibited at RML. Certain chemicals that are NOT hazardous may be drain disposed. Hazardous wastes must NOT be disposed of by evaporation in fume hoods or biosafety cabinets. Ethidium bromide wastes require special storage, handling, and disposal practices. To request waste containers, chemical waste tags, or for collection call Lee Burkhardt, Jason Bargfrede or Dave Lennon at 363-9219. For questions about hazardous waste disposal issues call Aaron Bestor at 375-7467 or Barry Twardoski at 363-9216.

ANIMAL RELATED WASTE Red Bags

Animals, animal body parts and related wastes from ABSL-2, ABSL-3 and ABSL-4 areas and procedure rooms are considered biohazardous wastes. Carcasses are autoclaved and transported only in closed, leak-proof containers. Do not overfill biohazard waste bags and please limit to approx. 25 lb. Carcasses from ABSL-3 and ABSL-4 being transported to the incinerator must be either under direct supervision or in designated secure areas. Locking freezers are available for temporary carcass storage in Bldgs. 13, 23, 25, and 28. Contact Nancy Hoe at 363-9334 for questions regarding autoclaving and storage of animal wastes. Lab managers should notify the RML incinerator operators at 363-9219 in advance of large animal studies.

RADIOACTIVE WASTE - Yellow Bags

All solid radioactive wastes are labeled and transported to radioactive waste storage in Bldg. 15 by lab personnel. Liquid radioactive wastes are either drain disposed or placed in room A111 for decay-in-storage. For more information on radioactive waste disposal contact Aaron Bestor at 375-7467.

GENERAL REFUSE & RECYCLABLES – Clear Bags

General wastes go in clear bags in cans located in offices, lunch or break room areas, hallways, etc. Please help RML by recycling **batteries, cardboard, white paper, newspaper, flyers, magazines, plastics, aluminum cans and foil.** Recyclable materials coming out of laboratory areas must be autoclaved prior to submitting for recycling. Do not attempt to recycle any material that has come in contact with infectious material. Call Dave Lennon at 363-9219 or 200-1637 for more information.

For specific details on separation of waste streams, color coding of waste bags, and handling procedures for each waste category see the **RML Waste Management Plan, SOPs for your lab, or the RML Safety Manual**. For questions call Aaron Bestor at 375-7467 or Barry Twardoski at 363-9216.