IDAHO STATE UNIVERSITY

Hazardous Waste Management Policies and Procedures Manual

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Revision of April 28, 2008

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This manual was prepared for use within ISU. It is intended for use by, and applies to ISU employees, staff, visitors, and students. If this manual or any portion of it is used elsewhere, neither its authors nor the University accept responsibility for its contents.

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1 INTRODUCTION

1.1 Purpose and Scope

The purpose of this manual is to provide important hazardous waste information for Idaho State University (ISU). Proper hazardous waste management is important in order to provide healthy and safe working conditions for faculty, staff, and students; to protect the environment; and to ensure compliance with applicable federal, state, and local laws and regulations. If there are situations that this manual does **NOT** address, or if there are questions regarding the procedures it contains, contact a hazardous waste specialist at the ISU Technical Safety Office (TSO), ext. 2310. For emergency situations after normal working hours or weekends, please refer to the table of phone numbers on the **BACK COVER** of this manual or in Appendix O.

Please note that this document is not a general hazardous material safety manual. Safe acquisition, storage and use of hazardous materials is handled by the College, Department, or other applicable unit within the University, with guidance by the ISU Safety Committee. This manual is applicable to the generation, minimization, storage, recycling and disposal of hazardous waste only. Nevertheless, many of the safe work practices and information identified in this manual for the handling of hazardous waste are applicable to hazardous materials in general. This manual was prepared for use within ISU. It is intended for use by, and applies to, ISU employees, staff, visitors, and students. If this manual or any portion of it is used elsewhere, neither its authors nor the University accept responsibility for its contents.

Infectious waste policies and procedures for ISU can now be found in a separate manual entitled, "Infectious Waste Policies and Procedures Manual". A copy of this manual may be obtained at any time by calling TSO at ext. 2310.

1.2 Environmental Laws and Regulations

In 1976, Congress enacted the Resource Conservation and Recovery Act (RCRA) to protect human health and the environment from improper hazardous waste management practices. ISU falls under the RCRA and other environmental laws and regulations, including the Toxic Substances Control Act (TSCA), Superfund Amendments and Reauthorization Act (SARA), Clean Water Act (CWA), Clean Air Act (CAA), Emergency Planning and Community Right-to-Know Act (EPCRA), and Idaho General Safety and Health Standards (IGSHS) and regulations implemented by the Idaho Department of Environmental Quality (IDEQ). Thus, it is very important to not discard as ordinary trash any reagents, chemical solutions, chemical mixtures, industrial products, infectious wastes, contaminated rags, or any items containing or contaminated with substances which may be regulated under one or more of these programs.

It is the responsibility of University personnel to follow the procedures in this manual. The University is subject to state and/or federal inspection at any time. The University and individuals can be cited for failure to comply with hazardous waste regulations. Conviction can result in civil or criminal penalties, depending upon the seriousness of the violation. It is the responsibility of all ISU departments and their employees during working hours, and visitors during their presence on ISU property, to comply with all of the above regulations. If any clarification or help is needed in interpreting and complying with the above regulations please contact the TSO at ext. 2310.

1.3 Waste Generator Status

RCRA regulations exempt two categories of small quantity generators from some of the hazardous waste regulations, primarily those concerning record-keeping and reporting. These are the Conditionally Exempt Small Quantity Generator (CESQG) and the Small Quantity Generator (SQG). Under RCRA, a small quantity generator is defined as an entity which produces less than 1,000 kilograms but more than 100 kilograms per month of hazardous waste and/or less than 1 kilogram per month of acute hazardous waste. A CESQG is an entity which produces less than 100 kilograms per month of hazardous waste and/or less than 1 kilogram per month of acute hazardous waste. Acute hazardous waste is identified in RCRA regulations with a "P" prefix. These wastes are listed in Appendix E.

RCRA requires each waste generator to obtain an Environmental Protection Agency (EPA) identification number for its activities that occur within a contiguous area. Idaho State University has six EPA identification numbers for its areas. The main Pocatello campus is defined as a SQG and the five satellite campuses are classified as CESQGs. This means that ISU must follow the regulations for both CESQGs and SQGs. The five CESQG sites are the Aircraft hangar located at the Pocatello Airport, the Edward F. Dowling building at Benton and Main, the School of Applied Technology Diesel Mechanics building on South Second Avenue, the Research and Business Park, and the Center for Higher Education on Science Center Drive in Idaho Falls.

1.3.1 Small Quantity Generator Status

It is very important for the main ISU campus to retain its SQG status. There are significantly increased administrative reporting requirements which are applicable to large quantity generators (LQGs) that the University would like to avoid, as well as higher disposal costs associated with larger volumes and more frequent disposal of hazardous wastes.

It is unlikely ISU will exceed the 1,000 kg/month quantity of hazardous waste generation given the current levels of generation. However, there are a number of both research related and industrial chemicals present, or capable of being prepared, which are listed as acute hazardous, or "RCRA P-listed," once they have been declared as waste. If Idaho State University were to exceed the generation of 1 kg/month for these wastes, a status of LQG would have to be established. A list of these acute hazardous materials, or RCRA P-listed is in Appendix E of this manual. Please do **NOT** generate a RCRA P-listed waste without **FIRST** contacting the TSO. Other researchers on the campus may also be generating RCRA P-listed waste, and the combined total could potentially exceed the 1 kg/month threshold. TSO staff are able to answer questions concerning P-listed wastes.

Careful management of all hazardous materials from purchase to disposal will ensure that ISU does not lose its SQG status, and keeps hazardous waste disposal costs to a minimum. Please buy and use only the smallest quantity of any hazardous material which is necessary. In most cases, it is far more expensive to dispose of hazardous material as waste than it is to purchase it as new material. Other departments on campus may be willing to sell or exchange small quantities of materials. Sections 2.1.2 and 9 of this manual discuss other ways of minimizing hazardous waste generation.

1.3.2 Conditionally Exempt Small Quantity Generator Status

It is equally important that ISU does not lose its CESQG status for its remaining locations.

A CESQG must not generate more that 100 kg/month of hazardous waste or more than 1 kg/month of acutely hazardous waste (RCRA P-listed). The ISU CESQG locations in Pocatello generate primarily recyclable wastes in the form of spent cleaning solvents and used oil. Reporting is still required by the State of Idaho for these locations, as well as the possibility of EPCRA and SARA reporting, depending upon quantities. Please help ISU keep its CESQG status for these locations by maintaining or reducing the waste quantities generated.

2 PROGRAM OVERVIEW

Depending on their specific characteristics, hazardous wastes generated at ISU are either recycled, disposed of through a hazardous waste broker, or treated on site. Treatment on site is limited to neutralization of certain acids and bases and certain types of water based latex paint solidification. These three groups all have different requirements for packing, labeling, and handling. Unregulated, non-hazardous wastes are either recycled or disposed of as ordinary trash.

2.1 Programs Goals

The ISU Hazardous Waste Management Program is designed to achieve three major objectives for ISU:

- protection of human health, safety, and the environment;
- sound management of hazardous waste on the ISU campus, including waste minimization; and
- compliance with applicable laws and regulations.

2.1.1 Protection of Human Health

Health and safety information on specific waste streams can be obtained from many sources. Material Safety Data Sheets (MSDSs), provided either by the manufacturer, MSDS sites on the internet, the TSO's webpage: **http://www.physics.isu.edu/health-physics/tso/msds.html** or physical copies from the TSO, are the most common places to start. The TSO also has other resources for health and safety information about hazardous waste that is available upon request. Proper identification, labeling, and characterization of a waste protects the health and safety of all those who come in contact with it through normal procedures, inspections, or emergency response. Proper training of individuals who handle hazardous materials and hazardous waste is also vital for meeting this objective. Hazardous waste training from the TSO is available to all campus personnel upon request.

2.1.2 Reduction of Hazardous Waste on ISU's Campuses

The quantity of hazardous waste generated at ISU can be reduced significantly by:

- substituting non-hazardous material for hazardous material whenever possible
- recycling unused material between teaching and research laboratories and between departments
- defining and performing waste reduction chemistry as part of the process being used in the laboratories
- monitoring of departmental purchases to identify and minimize the quantities of those materials that may become chemical hazardous waste
- not accepting donated or "free" materials
- proper classification and labeling of wastes and separation into appropriate waste categories for disposal

Many other hazardous waste reduction techniques may be found on the TSO's hazardous waste webpage **http://www.physics.isu.edu/health-physics/tso/reduction.html**.

2.1.3 Compliance With Laws and Regulations

The policy of ISU is to comply fully with Federal, State, and local regulations regarding the accumulation, storage, identification, recycling, packaging, shipment, and disposal of hazardous wastes. Since many agencies may be involved with a specific waste type and its use, it is important to have a good understanding of these laws and regulations to meet the objectives stated above. If you are uncertain about what these rules are, or how they apply to you, contact the TSO at ext. 2310 for assistance.

2.1.4 Waste Management References

There are hundreds of thousands of specific materials and millions of mixtures. Many of these materials do not possess hazardous properties; however, a small number can be extremely harmful to human health and the environment and must be respected. Information is available on these hazardous materials, either in printed form or on electronic media. Material Safety Data Sheets are required to be supplied by the chemical manufacturer and it is highly recommended that these sheets remain, in an organized fashion, with the chemical. Assistance with hazardous material properties and the proper storage, handling, waste disposal, and regulatory requirements is available through the TSO.

3 HEALTH AND SAFETY

Idaho State University seeks to ensure the health and safety of all people who are a part of the University environment. These include faculty, staff, students, contractors, volunteers, and visitors. The policies and procedures in this manual were developed to meet that objective, insofar as hazardous waste is concerned.

3.1 Training Requirements and Responsibilities

There are specific training requirements for individuals who work with hazardous waste. These requirements are found in federal code and specify minimum training levels. For this reason, personnel who are designated as departmental material handlers, laboratory supervisors, SAA coordinators, SAA managers, and waste generators must be properly trained to work with hazardous waste (see Chapter 6 for a discussion of SAA coordinators, SAA managers, and waste generators). Special hazardous waste training may be requested for TAs, RAs, GAs, and other students who work in laboratories.

3.2 Custodial Employees

Custodial employees must be considered when disposing of nonhazardous and hazardous solid waste. These personnel must not encounter hazardous waste when maintaining floors, sinks, counter or bench tops, closets, or trash receptacles. All sharp items, such as broken glassware and pipet tips, need to be placed in an appropriately labeled container and not in the normal trash receptacles. It is also a good practice to place non-hazardous powders in a sealed container or bag before throwing them into normal trash. Custodial staff are given yearly hazardous waste awareness/safety training at their monthly safety meetings. New custodial employees can request training from TSO at any time. Such requests must be made either through their direct supervisor or by contacting the TSO.

3.3 Maintenance and Operations Employees

These employees frequently come into contact with potentially hazardous materials and hazardous wastes. Examples include pesticides, cleaning agents, oil-based paints and stains, PCB oils, cylindered gasses, automotive fluids, and shipments of incoming chemicals. Some of these generate hazardous waste after usage. If you work with any of these materials or mixtures and would like more detailed information concerning risks and precautions recommended for safe handling and disposal, obtain Material Safety Data Sheets (MSDS) or talk to a materials handler.

3.4 Hazard Communications

It is important that each person who uses or is exposed to hazardous materials at the University has information available that will let them know the risks associated with exposure to the hazardous material. The use of MSDS, reference texts, safety training, work demonstrations, videos, and medical monitoring can be beneficial for individuals who are potentially exposed to hazardous material and hazardous waste. Hazard communication is usually the responsibility of the department heads or safety officers.

The TSO would like to emphasize the importance of reading, understanding, and

keeping all MSDS that come with chemicals. MSDSs contain important information such as the hazards of the chemical, physical characteristics of the chemical, storage and handling instructions, and protective clothing and equipment that should be used for safe work. TSO keeps training material on how to read and understand an MSDS in the office and is available upon request. MSDSs may also be found from several places on the internet. Several of these sites are listed on TSO's website at **http://www.physics.isu.edu/health-physics/tso/msds.html.** Electronic copies should not replace the original copies as characteristics of chemicals can change during production and may vary with manufacturers. MSDSs are also important means of characterizing a waste as hazardous or not.

Chemical labeling is another important element of hazard communications. Improper labeling may lead to serious injuries. A good chemical label will include at least the following information: chemical identity written in English (not a chemical formula), expiration date of the chemical, physical hazards (such as fire or unusual reactivity), and any other physical characteristic of importance (such as odor). These are just a few of several good labeling practices. When an unlabeled chemical becomes a waste, it is very expensive to test the chemical for hazardous characteristics. A few minutes with a permanent marker could save the University hundreds of dollars.

3.5 Personal Protection Equipment (PPE)

Whenever hazardous materials, including hazardous wastes, are used or handled on campus, use of proper personal protection equipment should be considered to protect all potentially exposed personnel. The degree of PPE used should commensurate with the hazard potential. PPE includes, but is not limited to, safety glasses, chemical gloves, face shields, aprons, lab coats designed to offer splash protection, fume hoods, and filtering face masks. It is advisable to train personnel in the use of PPE prior to initiation of activities involving any hazardous material, and to repeat the training whenever a significant change in use occurs. Consult TSO personnel for assistance involving PPE. PPE that has been contaminated by a hazardous material needs to be characterized as to whether or not it becomes a hazardous waste.

3.6 University Emergency and Disaster Response

The TSO can respond to a variety of incidents which involve hazardous materials and hazardous waste. It is best to be aware of the ways of reaching both Public Safety and the Technical Safety Office personnel **PRIOR** to an actual emergency. Emergency telephone numbers are found at each SAA (in the front cover of the SAA binder), at the nearest telephone to the SAA and on the back cover of this manual. Be sure to have these numbers handy in the event of a hazardous material spill, fire, or other emergency. In the event that someone is hurt, immediately dial 911 and be sure to tell the dispatcher that hazardous materials may have been involved. In the event of the loss of communications on campus, the TSO is located in room 101 of the Physical Science building.

4 WHEN IS A WASTE HAZARDOUS?

There are numerous, and sometimes conflicting, regulatory definitions for hazardous material and hazardous waste. Not all waste is regulated as hazardous waste under RCRA, but many materials are regulated under separate programs at different concentrations. A waste generated at ISU is considered to be hazardous if any of the following apply:

4.1 Characteristic of Ignitability, Corrosivity, or Reactivity

Definitions for each characteristic is found in Appendixes A through D. These waste streams must be stored in separate SAAs or segregated within a single SAA, even if they are generated in the same room. Consult with TSO personnel if you have questions concerning these characteristics or their application to a specific waste.

4.2 EPA Listing of Hazardous Waste

The EPA has established lists of materials that must be handled and disposed of as hazardous when they become wastes. The listed wastes most frequently generated at ISU include the D-list (Appendixes A through D), U-list (Appendix F), and P-list (Appendix E). The materials on these lists are subject to change, as are their regulatory levels.

Special attention should be given to materials found on these lists which are being used or purchased. These materials must be handled by the procedures in this manual if and when they become waste. Do not buy more material than is absolutely needed and will be consumed. The cost to dispose of a hazardous waste is usually many times the initial cost to obtain the material.

4.3 Mixtures of Listed and Unlisted Wastes

There are many instances where an EPA-listed waste is found mixed with either an unlisted waste or another non-hazardous material. The "mixture" and "derived-from" rules under RCRA were designed to prevent using dilution of a listed hazardous waste as a treatment method. This means that even small concentrations of many hazardous wastes must be considered as regulated and disposed of properly. Do **NOT** mix a hazardous waste with a non-hazardous waste!

4.4 Wastes with New or Unique Characteristics

These wastes may be created in research or teaching labs, and must be evaluated to determine whether they meet any of the EPA definitions of hazardous waste. Contact the TSO personnel for assistance on this matter.

4.5 Types of Hazardous Waste

There are many kinds of hazardous wastes possible, and it is beyond the scope of this manual to list them all. However, a brief overview of the regulated waste categories most often encountered at ISU include:

Listed Wastes:

- D-listed characteristic wastes (found in Appendixes A through C)
- D-listed specific waste (found in Appendix D)
- P-listed acute hazardous wastes (found in Appendix E)
- U-listed specific wastes (found in Appendix F)

Universal Wastes:

- Batteries (lead-acid, mercury, lithium, Ni-Cd)
- Spent lamps (some fluorescent, sodium and mercury vapor and high intensite discharge lamps)
- Agricultural pesticides
- Mercury containing items

Other Wastes:

- Abestos and asbestos-containing materials
- Polychlorinated biphenyls (PCBs)
- Car batteries
- Photographic solutions
- Oils and solvents
- Copier chemicals and supplies
- Suspected carcinogen, mutagen, or teratogen
- Certain kinds of scintillation fluids
- Solvent contaminated rags
- Oil or lead based paints
- Certain cleaning chemicals

Within these categories, subgroups are also possible. It is a good idea to check with the TSO for information relating to proper disposal of wastes if you suspect they are within one or more of these categories.

4.6 Sources of Information Regarding Hazardous Waste

At Idaho State University, there are several sources of information regarding the hazards associated with hazardous waste. Aside from formal training, which is available through the TSO personnel, a variety of books, manuals, videos, network and internet contacts, and vendor-supplied information can be accessed or made available. Department materials handlers may also be able to answer questions.

4.7 Other Types of Wastes

There are several types of waste generated at ISU which are not covered by this manual. These include:

- **Non-hazardous solid wastes.** Examples include garbage, rubbish, paper or

cardboard refuse, latex (water-based) paints and stains, and non-contaminated glassware.

- **Radioactive waste.** Examples include scintillation vials containing radioactive material, and other radioactive wastes that do not also have characteristic or specific hazardous waste properties. Radioactive wastes are managed under the Radiation Safety Division of the Technical Safety Office. The "Radiation Safety Policies and Procedures Manual" is available upon request. You may contact Radiation Safety at extension 2310 with questions concerning radioactive waste.
- **Mixtures of radioactive and hazardous wastes (mixed wastes).** This special class of waste represents a problem for all waste generators, because there are extremely limited and very expensive options for disposal of mixed wastes. ISU has no storage capability for such waste. **DO NOT GENERATE ANY MIXED WASTE.**

If you are unsure of what type of waste you are generating, or how to dispose of it, please contact the TSO at ext. 2310 for further waste stream characterization.

5 SPECIFIC HAZARDOUS WASTE SOURCES

Any material which is to be discarded, abandoned, or accumulated prior to recycling is considered a waste. Some major categories of hazardous materials and potentially hazardous wastes are provided below, including examples. If you are uncertain about a particular waste, please contact TSO at ext. 2310.

Because it is impossible to provide a complete classification of all possible hazardous waste in this manual, please contact the TSO at ext. 2310 before discarding any chemical or other potentially hazardous waste that you generate. **Waste is not to be transported anywhere or placed in front of the Temporary Accumulation Area (bldg. 16 B) by anyone that is not TSO staff. Waste will not be transported by TSO staff unless it is in a container that complies with all regulations.** A discussion of proper containers can be found in Section 6.3.1 of this manual.

5.1 Bulk Material Policy

If a lab or department purchases any chemical that weighs in excess of 50 Kg, or the container exceeds 30 gallons in volume, the TSO needs to be notified prior to its acquisition by your department.

Departments or labs purchasing acute hazardous chemicals of any quantity that are ***p-listed*** according to RCRA guidelines (appendix E of this manual) must also contact the TSO for verification of their purchase.

5.2 Unknowns

Perhaps the most expensive and time-consuming group of potentially hazardous waste is the unknown. If no identity can be assigned to a material, or its identity cannot be determined by process knowledge, the unknown must be subjected to analytical procedures that can cost ISU thousands of dollars and take several weeks to complete. The cost for these analyses is generally borne by the TSO, unless abuse of this service is detected. Most unknowns can be avoided by using standard laboratory protocol:

- **label** each container as to its contents, date received or prepared, and concentration.
- obtain MSDSs from the manufacture and have them on hand. For newly purchased materials the ISU purchasing department will route MSDSs provided by the manufacturer to the department that bought the materials.

Unknowns should **NOT** be placed in an SAA or transported by TSO staff to the TAA until an analysis of the unknown has been completed. Exposure of certain material to weather extremes can create dangers of fire, explosion, or container rupture and subsequent expensive cleanup activities and potential for environmental contamination.

5.3 Abandoned Material

Material that has been abandoned, or for which ownership cannot be identified, may be hazardous waste. If the identity of the material is not known, it is treated as an unknown (Section 5.1). If the identity of the abandoned material is known, notify the TSO at ext. 2310 for characterization and pick-up. Abandoned material that is deemed hazardous must be stored properly upon discovery.

5.4 Questionable Purity

Material with questionable purity cannot be expected to be used in either a teaching or research capacity. While some of these materials may be hazardous waste once they are characterized, others often are not, but still must be disposed of properly. The TSO will assist individuals with this task to ensure safe and environmentally sound disposal practices.

5.5 Expiration Date Surpassed

Some materials have specified expiration dates which must be observed for a variety of valid reasons, which include purity, safety, and regulatory concerns. For example, peroxide forming chemicals, some of which are listed in Appendix G, have expiration dates which should not be exceeded under any circumstances. In addition, manufacturers often supply expiration dates on labels of materials that are related to potency or even composition changes that occur with time, temperature, or other storage conditions. These dates should always be observed, and if they are exceeded, the material is to be considered a waste and characterized to see if it meets hazardous characteristics.

5.6 Materials from Discontinued or Completed Activities

When these materials are no longer useful, they may be considered hazardous waste. However, another possibility is to recycle them by identification through the ChemSwap program or department transfer. Each Department Material Manager or laboratory supervisor should attempt to determine whether a material they need is available elsewhere on campus before buying more from an outside vendor. This will help reduce the financial burden on both initial cost and ultimate disposal cost when it is eventually declared as a hazardous waste. Some examples of these kinds of activities include:

- A principal investigator or researcher leaves the University
- Lab work on specific projects is completed
- The responsibility for a lab or work area changes

It is very important to clean chemicals out of a laboratory **BEFORE** a principal investigator or researcher leaves the University. Unknown or questionable chemicals left in laboratories are very expensive to test. Please consult with TSO personnel concerning the fate of these materials and the procedures to be followed to ensure proper closure of a laboratory or program within a lab.

5.7 Excess Stock

Excess stock with no likelihood of use either by their current owners, the department, or others elsewhere on campus is considered waste. Careful planning when purchasing materials can

reduce the volume of excess material that must ultimately be managed as hazardous waste. Some helpful ways to accomplish this goal are presented in Section 9, entitled "Hazardous Waste Minimization Programs".

5.8 Spent Cleaning and Wash Solvents

Spent cleaning and wash solvents are almost always considered hazardous waste, because either the solvent itself or the materials which contaminate the solvent are considered hazardous. There are options as to the types of solvents and processes used which may not be regulated as hazardous waste. Currently, spent solvents from automobile, diesel, aircraft, or other parts washers at ISU are recycled under a monitored program. Other generators of spent solvents should contact the TSO for waste solvent management options. **Rags** used in these processes also become a hazardous waste when using a hazardous solvent. These rags must be stored in a closed and labeled container in a SAA. **Laundering of these rags is NOT an acceptable alternative. Drying these rags and disposing of them in the dumpster is also NOT an acceptable alternative!**

5.9 Waste Paints and Stains

Waste paints and stains which contain hazardous metals in the specific D-list on Appendix D or hazardous solvents which may be flammable, must be considered hazardous waste. Old paint cans meeting these characteristics which have hardened contents must also be presented for proper disposal. Most water-based latex paints currently are not considered to be hazardous, but may not be acceptable to a municipal solid waste landfill. Currently, the TSO solidifies latex paint before arranging for disposal at the landfill. Spray paints may also meet the hazardous criteria. Please consult the TSO for proper disposal information.

5.10 Motor Oil and Filters

Regulations on used motor oil and filters are subject to change. Currently, oil is recycled, but properly drained filters are disposed of as ordinary trash. The State of Idaho regulates these items. If you have questions concerning either the regulatory status or recycling options, contact the TSO. Oil must be recycled through a recycler that has obtained an EPA identification number. All oil must be drained from filters before the filter can be recycled or disposed of. Proper drainage procedures consist of punching a hole in the filter and letting it drain for 24 hours. All containers used to store used oil for *any* length of time must be marked with the words “USED OIL”.

5.11 Mercury and Mercury Compounds

Metallic mercury is commonly found in instrumentation such as thermostats, thermometers, and barometric pressure equipment. Bulk quantities of metallic mercury or mercury sulphide can usually be recycled. However, articles contaminated with mercury or its compounds must be disposed of as hazardous waste; many mercury compounds are P-listed waste. The TSO can provide a container for mercury or mercury sulphide compounds, if requested by the department. Call ext. 2310 with any questions about mercury compounds.

Cleanup of a mercury spill from a broken thermometer generates large quantities of mercury-contaminated waste that is very costly to dispose of properly. The cost per gram of

disposal is approximately 50 to 200 times the purchase cost. For the University, it is far less expensive to obtain an electronic or environmentally friendly thermometer than to pay disposal costs of a broken mercury thermometer. The TSO recommends that you do not buy new mercury-containing equipment for use at ISU when good alternatives are available.

Mercury compounds are currently very expensive to dispose of and many are P-listed wastes. Every attempt to find alternatives to using mercury compounds should be made. The cost per gram of disposal is approximately 50 to 200 times the purchase cost. If you have mercury compounds to dispose of, consider sulphide precipitation as a final step in your process. Currently, mercury sulphide is the only mercury compound which is accepted for recycling.

5.12 Electrical Transformers

Older electrical transformers often contain PCB dielectric oils. In the past, great expense has been incurred in testing for and disposing of these fluids from equipment that has been donated to the University. **DO NOT ACCEPT DONATED ELECTRICAL EQUIPMENT UNTIL IT HAS BEEN EVALUATED BY TSO PERSONNEL FOR HAZARDOUS MATERIALS!** The cost to dispose of contaminated donated equipment is very high and can be avoided if equipment is properly evaluated prior to acceptance.

5.13 Fluorescent Light Ballasts

The TSO currently receives all waste light ballasts collected by various Maintenance and Operations (M&O) personnel. Once collected, these ballasts are characterized by the TSO as to whether they contain PCBs. This characterization is determined by the specific manufacturer and date of manufacture. Under the Toxic Substance Control Act, the manufacturing of ballasts containing PCBs after 1979 is prohibited.

Today manufacturers of fluorescent light ballasts cannot legally produce PCB containing ballasts under TSCA. Ballasts which do not have PCB material can be recognized by the following:

- have the label "NO PCBS" **or**
- have a manufacturing date which is later than 1979 **or**
- are General Electric with a serial number starting with "8G" or ending in "W".

5.14 Donated or "Free" Hazardous Material

ISU has spent thousands of dollars on hazardous waste disposal of "free" hazardous material donated to the University. Do not accept any donated hazardous material from any outside source without first consulting with the TSO.

5.15 Electrical Batteries

Spent or unwanted batteries may be classified as hazardous waste, mainly due to their toxicity characteristics (RCRA D-listed waste). Batteries are subject to the toxicity characteristic leachate procedure (TCLP) to determine whether or not they are hazardous waste. Because these batteries are manufactured within specified tolerances, a representative sample may be used for a waste characterization for a given brand and type of battery.

Batteries highlighted in Appendix T list the regulatory status and disposal procedures for each type of battery. Those that have been determined to be a hazardous waste when spent or

unwanted are subject to the universal hazardous waste guidelines as described in Section 6 of this manual. Non-hazardous batteries, including alkaline, carbon zinc and zinc air batteries can be disposed of in the ordinary trash.

Spent **lead-acid batteries**, such as motor vehicle batteries, are not subject to federal hazardous waste regulations provided that they are recycled as described in 40 CFR 266.80. Contact the TSO for the names of local lead-acid battery recyclers. Non-hazardous waste batteries do not need to be accumulated in an SAA nor are they subject to storage time constraints associated with hazardous waste. However, batteries should be stored in a secondary container, such a polyethylene tub, to prevent contamination to the environment and should not be accumulated. Contact the TSO for transportation of these batteries to a recycling facility.

Batteries that are hazardous waste should have a label attached with the words "USED BATTERY" in the chemical description. Call the TSO to pick up the hazardous waste battery if it cannot be placed in an SAA. If the battery is leaking, it must be placed in a sealed container.

5.16 Photographic and Radiographic Solutions

Spent material used in developing X-ray films and photographic negatives and prints contain silver compounds from dissolution of the emulsion on print paper. These silver compounds are regulated under both the RCRA and the City of Pocatello NPDES pre-treatment standards, and must be recycled. For large generators, silver may be removed from waste streams at the point of generation and recycled. For smaller generators, the liquid wastes may be transported off site for recycling. Solutions containing spent silver that can be recycled should be labeled with the words "Used Fixer". Please contact TSO personnel for details.

Some photographic developing solutions may contain organic compounds that meet hazardous criteria. These solutions must be disposed of as hazardous waste and may not be able to be recycled.

5.17 Universal Waste

Universal Waste Policy

The Universal Waste Rule permits certain hazardous wastes known as "universal wastes" to be managed under streamlined requirements. The rule is designed to encourage recycling and proper disposal of some common hazardous wastes and to reduce the regulatory burden on businesses that generate these wastes. Idaho has adopted the federal Universal Waste Rule, so Idaho's requirements are identical to those of the federal government.

Universal Wastes

Currently, four types of hazardous wastes are considered universal wastes.

Batteries

This includes batteries such as nickel-cadmium (Ni-Cd) lithium (Li), small sealed lead-acid and mercuric oxide batteries, which are found in many common items, including electronic equipment, portable computers, cell phones and emergency backup lighting.

Agricultural Pesticides

These are pesticides that have been recalled or banned from use, are obsolete, have become damaged, or are no longer needed due to changes in use.

Spent Lamps

This includes lamps or bulbs that can contain mercury or lead, examples include fluorescent, high-intensity discharge (HID), neon, high-pressure sodium, mercury vapor, and metal halide lamps.

Mercury-Containing Equipment

Mercury-Containing Equipment is used in a variety of settings. Examples include barometers, manometers, temperature and pressure gauges, and mercury switches (such as light switches in automobiles). Also included in this category are mercury-containing *thermostats,* which can contain as much as three grams of liquid mercury and are located in almost any building, including commercial, industrial, agricultural, community, and household buildings.

All universal wastes must be stored in an environmentally responsible manner so that no spills or leaks occur, labeled correctly with the words "Universal waste" with the description and start date, then sent to an approved universal waste handler. Contact the TSO to arrange for the pick-up of any universal waste.

Used Light Bulb Disposal Policy

Though spent lamps are ultimately disposed of by the TSO, their collection is organized through the Environmental Specialist at the ISU Facilities Services. Requests for disposals must be made to the Environmental Specialist through the submission of an online maintenance request form through the Facilities Services webpage or by calling the Facilities Services front-desk at 282-4086. Only on receipt of a maintenance request will he contact and coordinate with the TSO when disposal shipments are required.

Spent lamps at ISU are placed into three categories:

- Fluorescent tube bulbs with green ends
- Other bulbs
- Broken bulbs

Spent lamps must be properly categorized before they can be disposed of by the TSO. Also, it is important to avoid breaking the bulbs since glass shards are a safety hazard and are difficult to contain.

***Bulb Type I**: Fluorescent bulbs with green ends*

1. Check to see if the fluorescent bulb is one of the following:
   Manufacturer: PHILIPS - fluorescent bulb has green color ends
   Manufacturer: GE – fluorescent bulb has a green color label on one of its ends and the label reads either "Ecolux" F32T8/SP41/ECO or F34SP41/RS/WM/ECO
2. If the fluorescent bulb **is** one of the above types:

a. Box the used light bulbs in the original packaging or in a structurally sound box
b. Dispose of the box as municipal solid waste (ie. in the regular trash)

3. If the fluorescent bulb **is not** one of the above types, then it is not considered Bulb Type I. Proceed to the procedure for disposing of Bulb Type II.

Bulb Type II: *Fluorescent bulbs without green ends, incandescent bulbs, metal halides, sodium vapor lamps, high intensity lamps, etc.*

1. Box the used light bulbs in the original packaging or in a structurally sound box
2. Stick a "Universal Waste" label on the box (stickers can be obtained from ISU facilities services department at ext. 2747)
3. Write the building name and date on the waste label
4. Bring the box to the designated collection area (storage trailer behind the Heat Plant building)

Boxes should not be stored in the storage trailer for more than six months from the date on the label. ISU facilities services department will inspect the trailer's spent lamp boxes once a month to ensure proper storage.

Broken Bulbs

If a bulb is broken, it must be handled differently since broken glass is a sharps danger and there is the possibility of gas release, depending on the type of bulb.

1. Open a window, if possible, to disperse gases
2. Clean up the broken pieces carefully using a broom and dustpan
3. Place the broken pieces in a structurally sound container or bag
4. Follow the Bulb Type II procedure

5.18 Contaminated Materials

Materials contaminated with a hazardous waste may also become a hazardous waste. Spill cleanup material, PPE, laboratory bench coverings, chemical storage cabinets, glassware, rags, etc., must all be evaluated before disposal into ordinary trash. Construction materials are often overlooked as being a hazardous waste. Any ductwork from fume hoods should be evaluated for hazardous materials before disposal.

6 RCRA HAZARDOUS WASTE MANAGEMENT

Proper hazardous waste management is a process that involves both personnel in the unit generating the waste and the TSO personnel. It involves the identification and characterization of a waste stream, proper containment and storage of the waste in a designated Satellite Accumulation Area (SAA), inspection of the containers in an SAA and the SAA itself on a regular basis, and scheduling for removal of the waste streams from an SAA as required by regulation. Details of what an SAA is, how to create one, and procedures for waste removal from the ISU campus are given below.

This information on SAAs is designed for those who generate waste on a regular basis. Information is also presented on occasional or one time generation of hazardous waste for those who fall into that category. If you generate hazardous waste infrequently, have questions about whether you need to establish an SAA, or questions about your active SAA, call the TSO at ext. 2310 for information and assistance.

Close coordination between the persons involved with an SAA and TSO personnel is vital for effective waste management, minimization, and disposal from waste generated at ISU. Your cooperation with all procedures is essential to the future of laboratory work and scientific research at ISU.

6.1 Satellite Accumulation Area (SAA) Definition

An SAA is defined in 40 CFR 262.34. It allows for accumulation of up to 55 gallons of hazardous waste or 1 quart of acute hazardous waste (P-listed) "..at or near any point of generation where wastes initially accumulate." EPA region 10 defines this location as being within the room where a waste is first generated, and thus, it cannot pass through a doorway to a hall or be moved to another waste SAA, even though it may contain a compatible or identical waste stream. Thus, a separate SAA must be created for each laboratory or room where a waste stream is generated; more than one SAA may also be needed in the same room if incompatible waste streams which need to be separated for safe storage are generated in the room. It is important to not overlook laboratory complexes. A doorway is the boundary, even if the doorway leads to a smaller room in the complex and not a hallway. If you have any questions concerning the definition of an SAA or its characteristics, contact the TSO at ext. 2310.

6.2 SAA Documentation

Various forms of documentation are used to help manage the SAA. These include a "SAA Registration" form, an "Satellite Accumulation Area" sign, an "Emergency Response Instruction" label, and an SAA packet (or binder) containing:

- "ISU Waste Management Guidelines" overview
- "Chain of Custody" form
- "Hazardous Waste" labels
- "SAA monthly inspection" form - TSO
- "SAA weekly inspection" form- SAA manager
- Segregation of incompatible waste
- ISU Hazardous Waste Policies and Procedures Manual
- Emergency contact sticker for telephone

All forms and labels can be obtained from the TSO at no cost to the department. Examples of each of these can be found in Appendices L through R. Other forms and labels can often be found in SAA binders. Examples of these include: *Hazardous Chemical* labels, informative lists (such as Peroxide Forming Chemicals, and incompatibility of laboratory chemicals), segregation of incompatible chemical instructions, MSDSs, and information about the NFPA fire diamond.

The *SAA Registration / Termination* form is used to both initiate or terminate an SAA with the TSO. This form is used by the TSO to predict the amount and frequency of hazardous waste generation, identify any unusual characteristics that would require special handling, and also to provide contact information for the responsible personnel. When all registration information on the form is completed, it is sent to the TSO for inclusion in the records. Occasionally the TSO will request updated information to include with this form.

The *Satellite Accumulation Area* label should be placed on the outside door of the SAA enclosure. It is designed to be highly visible and provide notification to the occupants of a room as well as for emergency responders that hazardous waste is stored within the enclosure.

The *Emergency Spill Response Instructions* labels are either adhesive-backed or included in the cover of the SAA binder. The adhesive backed labels should be applied to the surface near the entrance(s) to an SAA, near a telephone or exiting door in the room containing the SAA (or nearest available telephone), and near the SAA area. These instructions are to be followed by those who discover a leak or spill of material at an SAA location.

The *ISU Waste Management Guidelines* form is a quick reference document of SAA management responsibilities. It should only be used as a guidance document and does not replace this manual.

The *Chain of Custody* form is used to record information on the hazardous waste container, which is placed in an SAA. It also provides the official record of transfer of wastes from the area of generation to the TAA. Please press firmly with an ink pen

when filling out a Chain of Custody form so that all carbon copies can be read.

The *Hazardous Waste* label is also used to properly identify waste chemicals and their physical properties as well as identify them for inventory purposes. It is of utmost importance that the hazardous waste labels are completed accurately. Improper or false labeling may lead to a serious accident.

The *SAA Inspection* forms are used to record the weekly and monthly inspection certification of an SAA by SAA managers (weekly) and TSO personnel (monthly). A signature on this form indicates that the SAA and its contents have been inspected for leaks, compatibility, proper containment, and spills.

The *Incident Notification* form will be filled out by TSO personnel when a policy of this manual has not been followed. The purpose of the form is to inform the SAA personnel that a policy has not been followed, so that corrective actions may occur and proper policy can be followed in the future. This form is typically used when laboratory personnel can not be located and notified of the incident immediately during an SAA inspection. This form may also be used when incidents are repeated.

Please fill out all documentation carefully and accurately. The information provided by SAA coordinators, SAA managers, and SAA waste generators is relied upon by others to provide information they need to work safely with the waste, and to ensure regulatory compliance.

6.3 SAA Creation and Responsibilities

Creation of an SAA is both simple and convenient. For each SAA, an SAA coordinator and an SAA manager (it may be the same individual) is designated. The SAA manager should ensure that a waste is properly characterized and contained before it is placed in the SAA, and that the required paperwork is accurately filled out. The SAA manager must certify that the waste stream has been properly identified and that the Chain of Custody form is signed when the waste stream is removed from an SAA for proper waste disposal. The TSO has prepared SAA packets which contain all the forms and labels needed to create and operate each SAA. Examples of materials included in the packets are found in Appendices L through R at the end of this manual. TSO staff is involved in the creation of the SAA directly in order to provide training to the manager and ensure that the TSO receives all the required paperwork and has access to the room.

When a new SAA is needed, please complete a SAA registration form. The TSO will work with you to choose the site and help define what waste streams can be considered compatible in the SAA. SAAs should be kept in a locked room. Once an SAA is accepted, the TSO will notify the SAA coordinator and it will be included on the monthly inspection route of the TSO. **These steps must be completed prior to any hazardous waste being created and placed in an SAA.**

6.3.1 Proper Containers

Hazardous wastes that are placed in an SAA **must** be in a proper container. A proper container is one that meets the following regulations:

> **40 CFR 264.171** Condition of containers.
> If a container holding hazardous waste in not in good condition (e.g., severe rusting, apparent structural defects) or if it begins to leak, the owner or operator must transfer the hazardous waste from this container to a container that is in good condition or manage the waste in some other way that complies with the requirements of this part.
> **40 CFR 264.172** Compatibility of waste with containers.
> The owner of operator must use a container made of or lined with materials which will not react with, and are otherwise compatible with, the hazardous waste to be stored, so that the ability of the container to contain the waste is not impaired.
> **40 CFR 264.173** Management of containers.
> (A) A container holding hazardous waste must always be closed during storage, except when it is necessary to add or remove waste.
> (B) A container holding hazardous waste must not be opened, handled, or stored in a manner which may rupture the container or cause it to leak.
>
> *In addition to the federal regulations, ISU requires that no foodstuff containers be used to hold a hazardous waste. This is a precautionary measure to prevent accidental ingestion or improper disposal.*

Contact the TSO for more information concerning proper containers or if you need help in locating a proper container. We recommend that whenever possible hazardous wastes are stored in the original hazardous chemical bottles and are appropriately labeled as waste with any added components also marked on the label. TSO staff will gladly return empty waste containers to the department after the waste shipment, so long as prior arrangements have been made to do so. The TSO does not have room to store empty waste containers for departments.

6.4 SAA Management

The persons authorized to work with SAAs are the waste generator, the SAA manager, the SAA coordinator and TSO staff. It is also important that students working in the laboratory containing an SAA understand these procedures and safety practices. The TSO has prepared

online training material for students and TAs working in laboratories and training is available upon request.

Use of an SAA must be limited to the SAA Coordinator, SAA Manager, Generator, and TSO personnel. This will help prevent placement of an unidentified or uncharacterized waste into an SAA. Rooms containing SAAs should be locked when unattended.

6.4.1 Waste Generator

A person who is directly responsible for creating a hazardous waste is referred to as the Waste Generator. Generators are normally the laboratory workers, whether they are students, technicians, or faculty. They are to notify their SAA Manager and TSO of laboratory activity that may potentially generate a hazardous waste. They should be trained how to utilize the SAA management system and are responsible for handling their waste according to this manual and all training provided to them. Spot generation also occurs at this University. Spot generation refers to a one time or infrequent generation of hazardous waste. Any department on campus may have spot generation occurring. When spot generation occurs, TSO staff should be notified immediately so that the hazardous waste can be transferred to the TAA.

6.4.2 SAA Manager

Each SAA will have a specific person referred to as the **SAA Manager**. Generally, this is the laboratory's principal investigator or laboratory supervisor. The SAA manager is specifically responsible for:

- Providing SAA training to lab personnel
- Weekly inspection of the SAA
- **All** material placed within the SAA
- The general safety of the SAA
- Proper labeling of waste containers
- Maintaining/filing Chain of Custody records
- Notifying the TSO of needed pickups

6.4.3 SAA Coordinator

Each SAA will have a designated **SAA Coordinator**, generally the materials manager or department safety coordinator. The SAA Coordinator is usually responsible for several SAAs. This person has the responsibility for:

- Providing materials needed for the SAA
- Assisting researchers in characterizing waste
- Coordinating waste pickups where needed
- Providing training to SAA managers and stockroom personnel

- Acting as liaison between the department and TSO

To assure that proper management is accomplished, the SAA Coordinator should assist teachers and researchers in making sure that these guidelines are being followed and answer any questions regarding SAA management. This may include coordinating actions between the TSO and their department and taking responsibility for all paperwork related to SAA operation such as assuring that the hazardous waste is labeled correctly and that the hazardous waste container is recorded on the "Chain of Custody" form properly. The SAA Coordinators should assist the SAA Managers in setting up the SAA with the proper "Satellite Accumulation Area" sign.

6.4.4 Technical Safety Office

The **Technical Safety Office** has the sole responsibility for:

- Providing SAA packets to departments
- Final waste characterization
- Hazardous waste removal
- Hazardous waste transportation
- Hazardous waste disposal
- Placing the "Start Date" on waste containers
- Placing the "Transfer Date" and "Destination" on the COC form
- Monthly SAA inspections

During inspections, TSO personnel will look for evidence of corrosion, incompatible waste, leaks or spills, uncapped containers, unsecured SAA areas, and any incomplete forms or labels. Any problems will be reported to the SAA Coordinator for possible corrective action.

6.5 Hazardous Waste Containment

ISU's hazardous waste containment policy includes, but is not limited to, the following:

- All hazardous waste must be properly stored in compatible containers that prevent rupture or leakage of the material contained.
- Containers should not be filled beyond the neck or should have at least one inch headroom to allow for expansion.
- Containers should be made of material that does not react with or absorb the contents and have a screw cap of similar material properties.
- The cap must be in "new" condition, with no cracks or any signs of deterioration. **ALL WASTE CONTAINERS MUST BE CAPPED DURING**

STORAGE, EXCEPT WHEN ADDING OR REMOVING WASTE.

- No foodstuff containers may be used to store hazardous waste even if they are compatible with the material. See Section 6.3.1 for an explanation of this policy.

Ideally, the original container should be used if it shows no signs of deterioration. However, some older original containers may not meet current standards, even if they are intact. The responsibility for transferring chemicals into proper containers belongs to SAA personnel.

It is the department's responsibility to supply hazardous waste containers, however the TSO will assist in locating an empty containers when necessary. The TSO may chose to provide reusable five gallon carboys for some waste streams. These carboys should not be filled past the indicated mark. This allows for easier bulking of the waste when it comes time for shipment as these containers become heavy and difficult to maneuver when full. Several departments have requested that the TSO save some of the hazardous waste containers for hazardous waste containment re-use. Most hazardous wastes are bulked into 55 gallon drums for shipment so retaining some empty containers is possible if the TSO is notified ahead of time.

6.5.1 Secondary Containment

Each SAA must have secondary containment such as a tub or drum that can contain, at least, the quantity of the largest container. Each SAA is allowed to contain several separate waste streams, ***as long as they are chemically compatible***. **If separate waste streams are not compatible, they are to be separated by a physical barrier such as a wall or berm to prevent interaction in the event of a leak or a spill.** A separate secondary containment unit may be all that is needed to prevent interaction of some chemicals.

6.6 Hazardous Waste Labels

Properly labeled waste containers are critical for managing hazardous waste in a manner that is safe and compliant with regulatory requirements. Each waste container must be labeled with the following:

- the words, **"HAZARDOUS WASTE"**
- the **SAA manager's name, building and room number** where the material was generated.
- the **chemical constituents contained**. A generic title may be used only if specific waste profiles have been established with the Technical Safety Office (i.e., in teaching labs or long term research projects).

Once a container is considered full, all remaining information should be filled in by the SAA manager, except the "Start Date". This is filled in by TSO personnel and indicates the date a waste enters the TAA. This is very important, as there is no time limit on waste being kept in an SAA, but there is a time limit for waste stored in a TAA. Assistance in completing this information can be obtained from an MSDS or TSO personnel.

6.7 SAA Hazardous Waste Pickup

Whenever hazardous waste removal is required from an SAA, notify the TSO. Notification can be made in two ways:

1. Online - An online request form can be filled out on the ISU website from any of the following homepages: ***"Faculty and Staff", "Facilities Services",*** or the ***"Technical Safety Office"***, then click on the ***"Waste Pick-up Form"*** link. Fill in the requested information and click on "Send".

2. Telephone - Contact the TSO at ext. 2310. Have the following information ready when calling: Building #, Room #, department, waste description, quantity, and your name and phone number. Requests will be picked up in the order that they are received.

Online requests will take precedence over telephone requests.

6.8 Summary Steps for SAA Set-up and Implementation

The following scenario assumes that the identity of a waste stream is known.

- When a new waste stream is identified, the SAA coordinator obtains an SAA folder from the TSO with all the required forms and labels for the SAA.
- The SAA coordinator completes the "SAA Registration" form and turns it in to the TSO.
- The SAA coordinator receives notification from the TSO that the SAA is ready for waste storage.
- The SAA manager characterizes the waste using either technical data or MSDS information.
- The SAA manager or generator ensures that proper containers are used for waste, that a "Hazardous Waste" label with the required information is placed on each hazardous waste container and that the required information is entered on the "Chain of Custody" form.
- When hazardous waste removal from the SAA is required, the SAA coordinator or manager notifies the TSO.

- TSO personnel pick up the waste after the SAA manager or SAA coordinator has completed the “Chain of Custody” form.
- A copy of the “Chain of Custody” form is left at the SAA as evidence that the waste has been accepted by the TSO.
- The hazardous waste is then transported by TSO personnel using only ISU-owned vehicles to a storage facility called a Temporary Accumulation Area (TAA).
- Once a waste container arrives at the TAA, the individual containers are segregated according to their chemical compatibility and hazard class.

6.9 Procedure For Waste Removal From ISU Campus

The following procedures are followed for shipment of wastes:

- The hazardous waste is packaged for shipment to an EPA approved treatment/storage/disposal (TSD) facility.
- Each container is identified and labeled according to Department of Transportation(DOT) hazard class regulations.
- After the hazardous waste is taken by the broker for transportation to a TSD facility, aprintout of the shipment is obtained from a shipment tracking program and placed in a per-shipment file by TSO personnel.
- When a waste stream has been properly disposed of by the TSD facility, a "Certificate of Disposal" is provided by the waste broker as further evidence that a waste stream has been disposed of in accordance with all applicable regulations. These are also kept by the TSO personnel in a per-shipment file.

6.10 One Time or Occasional Hazardous Waste Generation

Some hazardous waste generation occurs as a result of the infrequent or one-time activities that do not warrant the creation of an SAA. Many of the responsibilities and activities listed in section 2.4.3 through 2.4.5 are still required of one time or occasional generators. TSO personnel should be contacted for assistance whenever a potentially hazardous waste is identified.

6.11 Hazardous Waste Treatability Studies

Laboratory research using samples of actual hazardous waste to investigate the efficiency of treatment or recycling are termed Treatability Studies. Researchers may use a limited amount of hazardous waste as a sample in a treatability study. These samples are exempted from the general hazardous waste regulations but are subjected to the treatability study regulations in 40 CFR 261.4 (e) and (f). If samples contain

radioactivity as well as hazardous chemical wastes, the investigator must be approved as a "Responsible User" by the ISU Radiation Safety Committee and the Responsible User's program must encompass the amounts and types of radioactive materials involved.

The treatability study regulations include limitations on quantity, allowed study processes, and duration of study/storage period. The regulations also state that proposed treatability studies are subject to regulatory oversight. The Idaho Department of Environmental Quality (IDEQ) and the TSO must be notified no less than 45 days in writing **before** a project begins. The principal investigator for each project must provide IDEQ with a contractual Treatability Study agreement with the funding agency and sample provider (prior to obtaining any sample material). In addition, the principal investigator must provide copies of all correspondence with IDEQ to the Technical Safety Office.

It may be desirable to conduct preliminary studies using new chemicals instead of actual hazardous waste. Studies with new chemicals are not subject to the special treatability study regulations. However, any hazardous waste created during the conduct of the study must be handled according to the regular ISU procedures.

The principal researcher must work closely with the Technical Safety Office to assure regulatory compliance (e.g., a list of reporting requirements can be obtained from the TSO). The TSO will offer technical and regulatory assistance to researchers interested in conducting Treatability Studies. The principal investigator should notify the TSO of planned Treatability Studies as soon as feasible.

The TSO must submit an annual report to IDEQ covering all ISU treatability studies. In order to collect information for this report, treatability study principal investigators are required to submit a yearly Treatability Study Progress Report to the TSO by December 31 of each year. The format of the report can be obtained from the TSO.

7 OTHER REGULATIONS AFFECTING ISU

Besides RCRA, there are other regulations which govern the way both hazardous materials and hazardous wastes are handled at ISU.

7.1 Toxic Substances Control Act (TSCA)

Several hazardous wastes, which historically have been generated on the ISU campus, are regulated under the TSCA. These include **asbestos** materials and **polychlorinated biphenyl (PCB) oils**.

Asbestos is typically found in old buildings as either insulation tape or wall/ceiling materials. If it is removed, the material is then considered a hazardous waste and must be disposed of accordingly. Removal must be done by qualified personnel. The central location for this waste is maintained in the Heat Plant, ISU Building #20. Please contact Maitenence and Operations (M&O) at ext. 4452 for further information. M&O manages asbestos rather than the TSO.

Most fluorescent light ballasts manufactured before 1978 contain a small capacitor which used PCB oils as a dielectric. When these long-life ballasts are removed, the ballasts must be disposed of as hazardous waste. In addition, electrical transformers often used PCB oils as a dielectric fluid. Use of these oils is banned under TSCA, but electrical equipment which still contains these oils is encountered infrequently. If you suspect that a piece of electrical equipment may have PCB oil in it, or oil is leaking from a piece of electrical equipment, please call TSO at ext. 2310 for further assistance. Another potential source of PCBs is immersion oils used in microscopy because of their high refractive index.

The TSO can assist in determining whether a specific oil does or does not contain PCBs. They can also help with proper containment and waste disposal of the PCB contaminated oil.

7.2 City of Pocatello (NPDES) Permit

ISU is regulated as to what may be discharged into the drains and sewer connections which lead to the City of Pocatello's Publicly Owned Treatment Works (POTW). This regulation is in the form of pre-treatment standards which are set by the City so as not to exceed the discharge concentration limits of hazardous substances, referred to as Priority Pollutants, regulated by their National Pollution Discharge Elimination System (NPDES) permit. A Priority Pollutant list and their concentration limits are provided in Appendix K. Do not put any material into a drain or sewer unless you are sure it is not controlled by this or other regulations.

7.3 Clean Air Act (CAA)

ISU is regulated under the CAA, which is administered in the State of Idaho by the Idaho Department of Environmental Quality (IDEQ). Currently, we do not create a sufficient volume per unit time of toxic airborne emissions to be of regulatory concern. However, this could change as the University grows or specified regulatory substances and levels change.

7.4 Emergency Planning Community Right-to-Know Act (EPCRA)

ISU is required to report the presence of hazardous materials that exceed certain amounts, called Threshold Planning Quantities (TPQs). ISU may exceed of these quantities for substances present on the campus. Thus, it is important to know the quantities of hazardous material and their locations for reporting purposes.

7.5 Idaho General Safety and Health Standards

The Idaho General Safety and Health Standards contains information related to the labeling and storage of hazardous materials, and a reference to the Code's application to school laboratories. Currently this code incorporates the 1982 Occupational Safety and Health Act (OSHA) standards found in the Code of Federal Regulations (CFR).

7.6 Reportable Quantities (RQ)

Certain hazardous materials have defined quantities which when released into the environment, are deemed to have sufficient hazard potential as to be reportable to several government agencies. These hazardous materials and their release reportable quantities are found in 40 CFR 302.4. Release to the environment includes a spill that might ultimately find its way into groundwater, such as through the soil or into a sewer or storm drain. It does not include releases contained within a structure. Please report ANY quantity of hazardous material released into the environment to the TSO. The TSO will determine reporting requirements.

8 EXCEPTIONS TO NORMAL STORAGE AND REMOVAL OF HAZARDOUS WASTES

8.1 Peroxides and Peroxide Forming Material

These two classes of materials are found extensively on the ISU campus, and represent a risk to those who either use them or work in the vicinity of someone who does. Peroxide forming materials present a danger of explosion and fire caused by shock-sensitivity of the peroxide compounds which can form inside a container. These compounds generally have expiration dates beyond which they must not be used, but rather are to be declared hazardous waste and replaced if necessary. The expiration date may be assigned and printed on the container by the manufacturer, or may be related to when the container was first opened. If two dates are possible, the more conservative date should be used for safety reasons. Appendix G contains a listing of some of these hazardous materials found at ISU.

8.2 Shock-Sensitive Material

Some materials are either shock-sensitive when bought, or more likely, become more shock-sensitive as they become older. A partial list of these important materials is given in Appendix H. Be sure to read and follow the label instructions for storage of these materials. If you discover a shock-sensitive material, do not attempt to move it yourself. Instead, notify the TSO immediately, and attempt to keep others from handling the container(s).

8.3 Water Reactive Material

Some materials react with water to produce a variety of hazards, such as heat, gases, fire, or corrosion. A partial list of these materials is given in Appendix I. Be aware of what these materials are and notify TSO personnel when they are declared waste. Special precautions are required to safely store these materials.

8.4 Pyrophoric Compounds

Some compounds react spontaneously with air, moisture or other compounds in the air to produce fire, heat or toxic fumes. This poses a danger to those who use them or are in the vicinity of those who use them. A partial list of such compounds can be found in Appendix J. Be aware of these materials, and notify TSO personnel when they are declared waste.

8.5 Cylindered Gases

Pressurized gas cylinders present potential hazards of several types. First, some gases are under tremendous pressure and their accidental release can cause a gas bottle to become a deadly projectile that can penetrate a wall or kill a person on impact. Second, the contents of bottles themselves may be toxic and should not be released unless in use under a fume hood or other exhausting device. Finally, valves can become corroded with age and leak or disintegrate unexpectedly, resulting in the above mentioned dangers to people and property. If you are unsure about a gas cylinder, no matter what its contents or pressure, contact TSO personnel for assistance.

8.6 Suspected Carcinogen, Mutagen, and Teratogen

There are some materials on the ISU campus that have no immediate (acute) effects on human health, but present long term (chronic) risk. Material Safety Data Sheets should indicate if a material is a suspected carcinogen, mutagen, or teratogen. Special care should be used when handling these materials. You can contact the TSO personnel for assistance.

9 HAZARDOUS WASTE MINIMIZATION PROGRAMS

Disposal of hazardous waste is not without potentially adverse environmental impacts. Disposal costs for some categories of material continue to increase due to pressure to regulate more substances at lower concentrations and limitations on the kinds of wastes that can be disposed of in landfills. For these reasons it is important to minimize the amount of material that must be disposed of as hazardous wastes, as discussed below.

Disposal costs are not charged directly to specific departments or projects, but are borne at the institutional level. The objective of this system is to allow each department, researcher, and staff member to manage their hazardous wastes properly without direct economic penalty.

9.1 Materials Exchange - Chemical Swap Program

Whenever you have an excess of materials, rather than declare it as waste, try to find someone within the ISU community who can use the material. Whenever you need a material, rather than purchase more, try to find someone within the ISU community that has an excess of that material. The Chemical Swap program can be used to locate chemicals that may be available for exchange and can be accessed by clicking "Start" on your computer, going to "Run" and then typing in \\athena.physics.isu.edu.\chemswap If the system prompts you for a password, use the information below:

USERNAME: chemswap
PASSWORD: chem4u&me

Follow the instructions on the websheet. If you have any questions, contact the TSO.

9.2 Less Is Better

Whenever possible, limit the amount of material you purchase to that which you can reasonably expect to use. Disposal costs for hazardous materials are frequently higher than the initial purchase price.

9.3 Alternative Material

In some circumstances, there are alternative materials or methods to carry out a procedure that results in less hazardous waste than others. These methods should be used whenever possible to minimize the volume (and costs) of disposal at ISU. Please take time to plan waste minimization activities by careful consideration of alternative

methods of achieving the same result. Your waste may turn out to be the material which moves ISU from a small quantity generator to a large quantity generator. **DO NOT LET THIS HAPPEN!!**

9.4 Experimental Quantities

Whenever possible, use the minimum quantity of materials for your work. Alternatives to full scale experiments include:

- microscale quantities of material to perform experiments
- team versus individual performance of experiments
- instructor demonstrations versus team or individual performance

9.5 The Final Steps

According to interpretations of federal regulations, it is permissible to minimize waste by steps that are part of the actual process. These steps must be documented (written) as part of the procedure for an experiment and represents an important way to minimize the amount of hazardous waste generated. TSO personnel can provide information to assist in these efforts.

Appendix A - Characteristic Ignitable Waste

D001 Waste Description

- It is a liquid, other than aqueous solution containing less than 24% alcohol by volume and has a flashpoint less than 60°C (140°F).

- It is not a liquid and is capable, under standard temperature and pressure, of causing fire through friction, absorption of moisture or spontaneous chemical changes and, when ignited, burns so vigorously and persistently that it creates a hazard.

- It is an ignitable compressed gas.

- It is an oxidizer.

Appendix B - Characteristic Corrosive Waste

D002 Waste Description

- It is aqueous and has a pH less than or equal to 2 or greater than or equal to 12.5.

- It is a liquid and corrodes steel (SAE 1020) at a rate greater than 6.35 mm (0.250 inch) per year at a test temperature of 55^{o}C (130^{o}F).

Appendix C - Characteristic Reactive Waste

D003 Waste Description

1. It is normally unstable and readily undergoes violent change without detonating.

2. It reacts violently with water.

- It forms potentially explosive mixtures with water.

- When mixed with water, it generates toxic gases, vapors, or fumes in a quantity sufficient to present a danger to human health or the environment.

- It is a cyanide or sulfide bearing waste which, when exposed to pH conditions between 2 and 12.5, can generate toxic gases, vapors, or fumes in a quantity sufficient to present a danger to human health or the environment.

- It is capable of detonation or explosive reaction if it is subjected to a strong initiating source or if heated under confinement.

- It is readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure.

- It is a forbidden explosive as defined in 49 CFR 173.51, or a Class A explosive as defined in 49 CFR 173.53, or a Class B explosive as defined in 49 CFR 173.88.

Appendix D - Characteristic Toxic Waste

Hazardous Waste #	Contaminant	CAS No.	Level (mg/ L)
D004	Arsenic	7440-38-2	5.0
D005	Barium	7440-39-3	100.0
D018	Benzene	71-43-2	0.5
D006	Cadmium	7440-43-9	1.0
D019	Carbon tetrachloride	56-23-5	0.5
D020	Chlordane	57-74-9	0.03
D021	Chlorobenzene	108-90-7	100.0
D022	Chloroform	67-66-3	6.0
D007	Chromium	7440-47-3	5.0
D023	o-Cresol	95-48-7	200.0 **/1/**
D024	m-Cresol	108-39-4	200.0 **/1/**
D025	p-Cresol	106-44-5	200.0 **/1/**
D026	Cresol		200.0 **/1/**
D016	2,4-D	94-75-7	10.0
D027	1,4-Dichlorobenzene	106-46-7	7.5
D028	1,2-Dichloroethane	107-06-2	0.5
D029	1,1-Dichloroethylene	75-35-4	0.7
D030	2,4-Dinitrotoluene	121-14-2	**\1** 0.13
D012	Endrin	72-20-8	0.02
D031	Heptachlor (and its epoxide).	76-44-8	0.008
D032	Hexachlorobenzene	118-74-1	**\1** 0.13
D033	Hexachlorobutadiene	87-68-3	0.5
D034	Hexachloroethane	67-72-1	3.0
D008	Lead	7439-92-1	5.0
D013	Lindane	58-89-9	0.4
D009	Mercury	7439-97-6	0.2
D014	Methoxychlor	72-43-5	10.0
D035	Methyl ethyl ketone	78-93-3	200.0
D036	Nitrobenzene	98-95-3	2.0
D037	Pentrachlorophenol	87-86-5	100.0
D038	Pyridine	110-86-1	**\1** 5.0
D010	Selenium	7782-49-2	1.0

D011	Silver	7440-22-4	5.0
D039	Tetrachloroethylene	127-18-4	0.7
D015	Toxaphene	8001-35-2	0.5
D040	Trichloroethylene	79-01-6	0.5
D041	2,4,5-Trichlorophenol	95-95-4	400.0
D042	2,4,6-Trichlorophenol	88-06-2	2.0
D017	2,4,5-TP (Silvex)	93-72-1	1.0
D043	Vinyl chloride	75-01-4	0.2

\1 Quantitation limit is greater than the calculated regulatory level. The quantitation limit therefore becomes the regulatory level.
\2 If o-, m-, and p-Cresol concentrations cannot be differentiated, the total cresol (D026) concentration is used. The regulatory level of total cresol is 200 mg/l.

(This list was modified from online CFRs at http://frwebgate.access.gpo.gov/cgi-bin/get-cfr.cgi?TITLE=40&PART=261&SECTION=24&YEAR=2000&TYPE=TEXT)

Appendix E - P Listed Waste

DISCARDED COMMERCIAL CHEMICAL PRODUCTS, OFF-SPECIFICATION SPECIES, CONTAINER RESIDUALS, AND SPILL RESIDUES THEREOF-ACUTE HAZARDOUS WASTE

Hazardous Waste #	CAS #	Substance
P023	107-20-0	Acetaldehyde, chloro-
P002	591-08-2	Acetamide, N-(aminothioxomethyl)-
P057	640-19-7	Acetamide, 2-fluoro-
P058	62-74-8	Acetic acid, fluoro-, sodium salt
P002	591-08-2	1-Acetyl-2-thiourea
P003	107-02-8	Acrolein
P070	116-06-3	Aldicarb
P203	1646-88-4	Aldicarb sulfone.
P004	309-00-2	Aldrin
P005	107-18-6	Allyl alcohol
P006	20859-73-8	Aluminum phosphide (R,T)
P007	2763-96-4	5-(Aminomethyl)-3-isoxazolol
P008	504-24-5	4-Aminopyridine
P009	131-74-8	Ammonium picrate (R)
P119	7803-55-6	Ammonium vanadate
P099	506-61-6	Argentate(1-), bis(cyano-C)-, potassium
P010	7778-39-4	Arsenic acid H3AsO4
P012	1327-53-3	Arsenic oxide As2O3
P011	1303-28-2	Arsenic oxide As2O5
P011	1303-28-2	Arsenic pentoxide
P012	1327-53-3	Arsenic trioxide
P038	692-42-2	Arsine, diethyl-
P036	696-28-6	Arsonous dichloride, phenyl-
P054	151-56-4	Aziridine
P067	75-55-8	Aziridine, 2-methyl-
P013	542-62-1	Barium cyanide
P024	106-47-8	Benzenamine, 4-chloro-
P077	100-01-6	Benzenamine, 4-nitro-
P028	100-44-7	Benzene, (chloromethyl)-
P042	51-43-4	1,2-Benzenediol, 4-[1-hydroxy-2-

		(methylamino)ethyl]-, (R)-
P046	122-09-8	Benzeneethanamine, alpha,alpha-dimethyl-
P014	108-98-5	Benzenethiol
P127	1563-66-2	7-Benzofuranol, 2,3-dihydro-2,2-dimethyl-, methylcarbamate.
P188	57-64-7	Benzoic acid, 2-hydroxy-, compd. with (3aS-cis)-1,2,3,3a,8,8a-hexahydro-1,3a,8-trimethylpyrrolo[2,3-b]indol-5-yl methylcarbamate ester (1:1).
P001	**\1** 81-81-2	2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenylbutyl)-, & salts, when present at concentrations greater than 0.3%
P028	100-44-7	Benzyl chloride
P015	7440-41-7	Beryllium powder
P017	598-31-2	Bromoacetone
P018	357-57-3	Brucine
P045	39196-18-4	2-Butanone, 3,3-dimethyl-1- (methylthio)-, O-[methylamino)carbonyl] oxime
P021	592-01-8	Calcium cyanide
P021	592-01-8	Calcium cyanide Ca(CN)2
P189	55285-14-8	Carbamic acid, [(dibutylamino)-thio]methyl-, 2,3-dihydro-2,2-dimethyl- 7-benzofuranyl ester.
P191	644-64-4	Carbamic acid, dimethyl-, 1-[(dimethyl-amino)carbonyl]- 5-methyl-1H- pyrazol-3-yl ester.
P192	119-38-0	Carbamic acid, dimethyl-, 3-methyl-1-(1-methylethyl)-1H- pyrazol-5-yl ester.
P190	1129-41-5	Carbamic acid, methyl-, 3-methylphenyl ester.
P127	1563-66-2	Carbofuran.
P022	75-15-0	Carbon disulfide
P095	75-44-5	Carbonic dichloride
P189	55285-14-8	Carbosulfan.
P023	107-20-0	Chloroacetaldehyde
P024	106-47-8	p-Chloroaniline
P026	5344-82-1	1-(o-Chlorophenyl)thiourea
P027	542-76-7	3-Chloropropionitrile

P029	544-92-3	Copper cyanide
P029	544-92-3	Copper cyanide Cu(CN)
P202	64-00-6	m-Cumenyl methylcarbamate.
P030	.....	Cyanides (soluble cyanide salts), not otherwise specified
P031	460-19-5	Cyanogen
P033	506-77-4	Cyanogen chloride
P033	506-77-4	Cyanogen chloride (CN)Cl
P034	131-89-5	2-Cyclohexyl-4,6-dinitrophenol
P016	542-88-1	Dichloromethyl ether
P036	696-28-6	Dichlorophenylarsine
P037	60-57-1	Dieldrin
P038	692-42-2	Diethylarsine
P041	311-45-5	Diethyl-p-nitrophenyl phosphate
P040	297-97-2	O,O-Diethyl O-pyrazinyl phosphorothioate
P043	55-91-4	Diisopropylfluorophosphate (DFP)
P004	309-00-2	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexa- chloro-1,4,4a,5,8,8a,-hexahydro-, (1alpha,4alpha,4abeta,5alpha,8alpha,8 abeta)-
P060	465-73-6	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexa- chloro-1,4,4a,5,8,8a-hexahydro-, (1alpha,4alpha,4abeta,5beta,8beta,8abeta)-
P037	60-57-1	2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aalpha,2beta,2aalpha,3beta,6beta,6a alpha,7beta, 7aalpha)-
P051	**\1** 72-20-8	2,7:3,6-Dimethanonaphth [2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aalpha,2beta,2abeta,3alpha,6alpha,6 abeta,7beta, 7aalpha)-, & metabolites
P044	60-51-5	Dimethoate
P046	122-09-8	alpha,alpha-Dimethylphenethylamine
P191	644-64-4	Dimetilan.
P047	**\1** 534-52-1	4,6-Dinitro-o-cresol, & salts

P048	51-28-5	2,4-Dinitrophenol
P020	88-85-7	Dinoseb
P085	152-16-9	Diphosphoramide, octamethyl-
P111	107-49-3	Diphosphoric acid, tetraethyl ester
P039	298-04-4	Disulfoton
P049	541-53-7	Dithiobiuret
P185	26419-73-8	1,3-Dithiolane-2-carboxaldehyde, 2,4-dimethyl-, O- [(methylamino)-carbonyl]oxime.
P050	115-29-7	Endosulfan
P088	145-73-3	Endothall
P051	72-20-8	Endrin
P051	72-20-8	Endrin, & metabolites
P042	51-43-4	Epinephrine
P031	460-19-5	Ethanedinitrile
P194	23135-22-0	Ethanimidothioc acid, 2-(dimethylamino)-N-[[(methylamino) carbonyl]oxy]-2-oxo-, methyl ester.
P066	16752-77-5	Ethanimidothioic acid, N-[[(methylamino)carbonyl]oxy]-, methyl ester
P101	107-12-0	Ethyl cyanide
P054	151-56-4	Ethyleneimine
P097	52-85-7	Famphur
P056	7782-41-4	Fluorine
P057	640-19-7	Fluoroacetamide
P058	62-74-8	Fluoroacetic acid, sodium salt
P198	23422-53-9	Formetanate hydrochloride.
P197	17702-57-7	Formparanate.
P065	628-86-4	Fulminic acid, mercury(2+) salt (R,T)
P059	76-44-8	Heptachlor
P062	757-58-4	Hexaethyl tetraphosphate
P116	79-19-6	Hydrazinecarbothioamide
P068	60-34-4	Hydrazine, methyl-
P063	74-90-8	Hydrocyanic acid
P063	74-90-8	Hydrogen cyanide
P096	7803-51-2	Hydrogen phosphide
P060	465-73-6	Isodrin
P192	119-38-0	Isolan.
P202	64-00-6	3-Isopropylphenyl N-methylcarbamate.

P007	2763-96-4	3(2H)-Isoxazolone, 5-(aminomethyl)-
P196	15339-36-3	Manganese, bis(dimethylcarbamodithioato-S,S')-,
P196	15339-36-3	Manganese dimethyldithiocarbamate.
P092	62-38-4	Mercury, (acetato-O)phenyl-
P065	628-86-4	Mercury fulminate (R,T)
P082	62-75-9	Methanamine, N-methyl-N-nitroso-
P064	624-83-9	Methane, isocyanato-
P016	542-88-1	Methane, oxybis[chloro-
P112	509-14-8	Methane, tetranitro- (R)
P118	75-70-7	Methanethiol, trichloro-
P198	23422-53-9	Methanimidamide, N,N-dimethyl-N'-[3-[[(methylamino)-carbonyl]oxy]phenyl]-, monohydrochloride.
P197	17702-57-7	Methanimidamide, N,N-dimethyl-N'-[2-methyl-4-[[(methylamino)carbonyl]oxy]phenyl]-
P050	115-29-7	6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide
P059	76-44-8	4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-
		3a,4,7,7a-tetrahydro-
P199	2032-65-7	Methiocarb.
P066	16752-77-5	Methomyl
P068	60-34-4	Methyl hydrazine
P064	624-83-9	Methyl isocyanate
P069	75-86-5	2-Methyllactonitrile
P071	298-00-0	Methyl parathion
P190	1129-41-5	Metolcarb.
P128	315-8-4	Mexacarbate.
P072	86-88-4	alpha-Naphthylthiourea
P073	13463-39-3	Nickel carbonyl
P073	13463-39-3	Nickel carbonyl Ni(CO)4, (T-4)-
P074	557-19-7	Nickel cyanide
P074	557-19-7	Nickel cynaide Ni(CN)2
P075	**\1** 54-11-5	Nicotine, & salts
P076	10102-43-9	Nitric oxide

P077	100-01-6	p-Nitroaniline
P078	10102-44-0	Nitrogen dioxide
P076	10102-43-9	Nitrogen oxide NO
P078	10102-44-0	Nitrogen oxide NO2
P081	55-63-0	Nitroglycerine (R)
P082	62-75-9	N-Nitrosodimethylamine
P084	4549-40-0	N-Nitrosomethylvinylamine
P085	152-16-9	Octamethylpyrophosphoramide
P087	20816-12-0	Osmium oxide OsO4, (T-4)-
P087	20816-12-0	Osmium tetroxide
P088	145-73-3	7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid
P194	23135-22-0	Oxamyl.
P089	56-38-2	Parathion
P034	131-89-5	Phenol, 2-cyclohexyl-4,6-dinitro-
P048	51-28-5	Phenol, 2,4-dinitro-
P047	\1\ 534-52-1	Phenol, 2-methyl-4,6-dinitro-, & salts
P020	88-85-7	Phenol, 2-(1-methylpropyl)-4,6-dinitro-
P009	131-74-8	Phenol, 2,4,6-trinitro-, ammonium salt (R)
P128	315-18-4	Phenol, 4-(dimethylamino)-3,5-dimethyl-, methylcarbamate (ester).
P199	2032-65-7	Phenol, (3,5-dimethyl-4-(methylthio)-, methylcarbamate
P202	64-00-6	Phenol, 3-(1-methylethyl)-, methyl carbamate.
P201	2631-37-0	Phenol, 3-methyl-5-(1-methylethyl)-, methyl carbamate.
P092	62-38-4	Phenylmercury acetate
P093	103-85-5	Phenylthiourea
P094	298-02-2	Phorate
P095	75-44-5	Phosgene
P096	7803-51-2	Phosphine
P041	311-45-5	Phosphoric acid, diethyl 4-nitrophenyl ester
P039	298-04-4	Phosphorodithioic acid, O,O-diethyl S-[2-(ethylthio)ethyl] ester
P094	298-02-2	Phosphorodithioic acid, O,O-diethyl

		S-[(ethylthio)methyl] ester
P044	60-51-5	Phosphorodithioic acid, O,O-dimethyl S-[2-(methylamino)-2-oxoethyl] ester
P043	55-91-4	Phosphorofluoridic acid, bis(1-methylethyl) ester
P089	56-38-2	Phosphorothioic acid, O,O-diethyl O-(4-nitrophenyl) ester
P040	297-97-2	Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester
P097	52-85-7	Phosphorothioic acid, O-[4-[(dimethylamino)sulfonyl]phenyl] O,O-dimethyl ester
P071	298-00-0	Phosphorothioic acid, O,O,-dimethyl O-(4-nitrophenyl) ester
P204	57-47-6	Physostigmine.
P188	57-64-7	Physostigmine salicylate.
P110	78-00-2	Plumbane, tetraethyl-
P098	151-50-8	Potassium cyanide
P098	151-50-8	Potassium cyanide K(CN)
P099	506-61-6	Potassium silver cyanide
P201	2631-37-0	Promecarb
P070	116-06-3	Propanal, 2-methyl-2-(methylthio)-, O-[(methylamino)carbonyl]oxime
P203	1646-88-4	Propanal, 2-methyl-2-(methyl-sulfonyl)-, O-[(methylamino)carbonyl] oxime.
P101	107-12-0	Propanenitrile
P027	542-76-7	Propanenitrile, 3-chloro-
P069	75-86-5	Propanenitrile, 2-hydroxy-2-methyl-
P081	55-63-0	1,2,3-Propanetriol, trinitrate (R)
P017	598-31-2	2-Propanone, 1-bromo-
P102	107-19-7	Propargyl alcohol
P003	107-02-8	2-Propenal
P005	107-18-6	2-Propen-1-ol
P067	75-55-8	1,2-Propylenimine
P102	107-19-7	2-Propyn-1-ol
P008	504-24-5	4-Pyridinamine
P075	**\1** 54-11-5	Pyridine, 3-(1-methyl-2-pyrrolidinyl)- , (S)-, & salts

P204	57-47-6	Pyrrolo[2,3-b]indol-5-ol, 1,2,3,3a,8,8a-hexahydro-1,3a,8-trimethyl-, methylcarbamate (ester), (3aS-cis)-.
P114	12039-52-0	Selenious acid, dithallium(1+) salt
P103	630-10-4	Selenourea
P104	506-64-9	Silver cyanide
P104	506-64-9	Silver cyanide Ag(CN)
P105	26628-22-8	Sodium azide
P106	143-**33**-9	Sodium cyanide
P106	143-**33**-9	Sodium cyanide Na(CN)
P108	**\1** 57-24-9	Strychnidin-10-one, & salts
P018	357-57-3	Strychnidin-10-one, 2,3-dimethoxy-
P108	**\1** 57-24-9	Strychnine, & salts
P115	7446-18-6	Sulfuric acid, dithallium(1+) salt
P109	3689-24-5	Tetraethyldithiopyrophosphate
P110	78-00-2	Tetraethyl lead
P111	107-49-3	Tetraethyl pyrophosphate
P112	509-14-8	Tetranitromethane (R)
P062	757-58-4	Tetraphosphoric acid, hexaethyl ester
P113	1314-32-5	Thallic oxide
P113	1314-32-5	Thallium oxide Tl2 O3
P114	12039-52-0	Thallium(I) selenite
P115	7446-18-6	Thallium(I) sulfate
P109	3689-24-5	Thiodiphosphoric acid, tetraethyl ester
P045	39196-18-4	Thiofanox
P049	541-53-7	Thioimidodicarbonic diamide [(H2N)C(S)]2 NH
P014	108-98-5	Thiophenol
P116	79-19-6	Thiosemicarbazide
P026	5344-82-1	Thiourea, (2-chlorophenyl)-
P072	86-88-4	Thiourea, 1-naphthalenyl-
P093	103-85-5	Thiourea, phenyl-
P185	26419-73-8	Tirpate.
P123	8001-35-2	Toxaphene
P118	75-70-7	Trichloromethanethiol
P119	7803-55-6	Vanadic acid, ammonium salt
P120	1314-62-1	Vanadium oxide V2 O5
P120	1314-62-1	Vanadium pentoxide

P084	4549-40-0	Vinylamine, N-methyl-N-nitroso-
P001	**\1** 81-81-2	Warfarin, & salts, when present at concentrations greater than 0.3%
P205	137-30-4	Zinc, bis(dimethylcarbamodithioato-S,S')-
P121	557-21-1	Zinc cyanide
P121	557-21-1	Zinc cyanide Zn(CN)2
P122	1314-84-7	Zinc phosphide Zn3 P2, when present at concentrations greater than 10% (R,T)
P205	137-30-4	Ziram.

\1\ CAS Number given for parent compound only.

[Comment: For the convenience of the regulated community, the primary hazardous properties of these materials have been indicated by the letters T (Toxicity), R (Reactivity), I (Ignitability) and C (Corrosivity). Absence of a letter indicates that the compound is only listed for toxicity.

(P list modified from online CFRs at http://www.access.gpo.gov/nara/cfr/waisidx_00/40cfr261_00.html)

Appendix F - U Listed Waste

Hazardous	CAS #	Substance
U394	30558-43-1	A2213.
U001	75-07-0	Acetaldehyde (I)
U034	75-87-6	Acetaldehyde, trichloro-
U187	62-44-2	Acetamide, N-(4-ethoxyphenyl)-
U005	53-96-3	Acetamide, N-9H-fluoren-2-yl-
U240	\1\ 94-75-7	Acetic acid, (2,4-dichlorophenoxy)-, salts & esters
U112	141-78-6	Acetic acid ethyl ester (I)
U144	301-04-2	Acetic acid, lead(2+) salt
U214	563-68-8	Acetic acid, thallium(1+) salt
see F027	93-76-5	Acetic acid, (2,4,5-trichlorophenoxy)-
U002	67-64-1	Acetone (I)
U003	75-05-8	Acetonitrile (I,T)
U004	98-86-2	Acetophenone
U005	53-96-3	2-Acetylaminofluorene
U006	75-36-5	Acetyl chloride (C,R,T)
U007	79-06-1	Acrylamide
U008	79-10-7	Acrylic acid (I)
U009	107-13-1	Acrylonitrile
U011	61-82-5	Amitrole
U012	62-53-3	Aniline (I,T)
U136	75-60-5	Arsinic acid, dimethyl-
U014	492-80-8	Auramine
U015	115-02-6	Azaserine
U010	50-07-7	Azirino[2',3':3,4]pyrrolo[1,2-a]indole-4,7-dione, 6-amino-8-[[(aminocarbonyl)oxy]methyl]-1,1a,2,8,8a,8b-hexahydro-8a-methoxy-5-methyl-, [1aS-(1aalpha, 8beta,8aalpha,8balpha)]-
U280	101-27-9	Barban.
U278	22781-23-3	Bendiocarb.
U364	22961-82-6	Bendiocarb phenol.
U271	17804-35-2	Benomyl.

U157	56-49-5	Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-
U016	225-51-4	Benz[c]acridine
U017	98-87-3	Benzal chloride
U192	23950-58-5	Benzamide, 3,5-dichloro-N-(1,1-dimethyl-2-propynyl)-
U018	56-55-3	Benz[a]anthracene
U094	57-97-6	Benz[a]anthracene, 7,12-dimethyl-
U012	62-53-3	Benzenamine (I,T)
U014	492-80-8	Benzenamine, 4,4'-carbonimidoylbis[N,N-dimethyl-
U049	3165-93-3	Benzenamine, 4-chloro-2-methyl-, hydrochloride
U093	60-11-7	Benzenamine, N,N-dimethyl-4-(phenylazo)-
U328	95-53-4	Benzenamine, 2-methyl-
U353	106-49-0	Benzenamine, 4-methyl-
U158	101-14-4	Benzenamine, 4,4'-methylenebis[2-chloro-
U222	636-21-5	Benzenamine, 2-methyl-, hydrochloride
U181	99-55-8	Benzenamine, 2-methyl-5-nitro-
U019	71-43-2	Benzene (I,T)
U038	510-15-6	Benzeneacetic acid, 4-chloro-alpha-(4-chlorophenyl)-alpha-hydroxy-, ethyl ester
U030	101-55-3	Benzene, 1-bromo-4-phenoxy-
U035	305-03-3	Benzenebutanoic acid, 4-[bis(2-chloroethyl)amino]-
U037	108-90-7	Benzene, chloro-
U221	25376-45-8	Benzenediamine, ar-methyl-
U028	117-81-7	1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester
U069	84-74-2	1,2-Benzenedicarboxylic acid, dibutyl ester
U088	84-66-2	1,2-Benzenedicarboxylic acid, diethyl ester
U102	131-11-3	1,2-Benzenedicarboxylic acid, dimethyl ester
U107	117-84-0	1,2-Benzenedicarboxylic acid, dioctyl ester

U070	95-50-1	Benzene, 1,2-dichloro-
U071	541-73-1	Benzene, 1,3-dichloro-
U072	106-46-7	Benzene, 1,4-dichloro-
U060	72-54-8	Benzene, 1,1'-(2,2-dichloroethylidene)bis[4-chloro-
U017	98-87-3	Benzene, (dichloromethyl)-
U223	26471-62-5	Benzene, 1,3-diisocyanatomethyl- (R,T)
U239	1330-20-7	Benzene, dimethyl- (I,T)
U201	108-46-3	1,3-Benzenediol
U127	118-74-1	Benzene, hexachloro-
U056	110-82-7	Benzene, hexahydro- (I)
U220	108-88-3	Benzene, methyl-
U105	121-14-2	Benzene, 1-methyl-2,4-dinitro-
U106	606-20-2	Benzene, 2-methyl-1,3-dinitro-
U055	98-82-8	Benzene, (1-methylethyl)- (I)
U169	98-95-3	Benzene, nitro-
U183	608-93-5	Benzene, pentachloro-
U185	82-68-8	Benzene, pentachloronitro-
U020	98-09-9	Benzenesulfonic acid chloride (C,R)
U020	98-09-9	Benzenesulfonyl chloride (C,R)
U207	95-94-3	Benzene, 1,2,4,5-tetrachloro-
U061	50-29-3	Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-chloro-
U247	72-43-5	Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4- methoxy-
U023	98-07-7	Benzene, (trichloromethyl)-
U234	99-35-4	Benzene, 1,3,5-trinitro-
U021	92-87-5	Benzidine
U202	**\1** 81-07-2	1,2-Benzisothiazol-3(2H)-one, 1,1-dioxide, & salts
U278	22781-23-3	1,3-Benzodioxol-4-ol, 2,2-dimethyl-, methyl carbamate.
U364	22961-82-6	1,3-Benzodioxol-4-ol, 2,2-dimethyl-,
U203	94-59-7	1,3-Benzodioxole, 5-(2-propenyl)-
U141	120-58-1	1,3-Benzodioxole, 5-(1-propenyl)-
U367	1563-38-8	7-Benzofuranol, 2,3-dihydro-2,2- dimethyl-
U090	94-58-6	1,3-Benzodioxole, 5-propyl-
U064	189-55-9	Benzo[rst]pentaphene

U248	**\1**81-81-2	2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenyl-butyl)-, & salts, when present at concentrations of 0.3% or less
U022	50-32-8	Benzo[a]pyrene
U197	106-51-4	p-Benzoquinone
U023	98-07-7	Benzotrichloride (C,R,T)
U085	1464-53-5	2,2'-Bioxirane
U021	92-87-5	[1,1'-Biphenyl]-4,4'-diamine
U073	91-94-1	[1,1'-Biphenyl]-4,4'-diamine, 3,3'- dichloro-
U091	119-90-4	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethoxy-
U095	119-93-7	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethyl-
U225	75-25-2	Bromoform
U030	101-55-3	4-Bromophenyl phenyl ether
U128	87-68-3	1,3-Butadiene, 1,1,2,3,4,4-hexachloro-
U172	924-16-3	1-Butanamine, N-butyl-N-nitroso-
U031	71-36-3	1-Butanol (I)
U159	78-93-3	2-Butanone (I,T)
U160	1338-23-4	2-Butanone, peroxide (R,T)
U053	4170-30-3	2-Butenal
U074	764-41-0	2-Butene, 1,4-dichloro- (I,T)
U143	303-34-4	2-Butenoic acid, 2-methyl-, 7-[[2,3-dihydroxy-2-(1-methoxyethyl)-3-methyl-1-oxobutoxy]methyl]-2,3,5,7a-tetrahydro-1H-pyrrolizin-1-yl ester, [1S-[1alpha(Z),7(2S*,3R*),7aalpha]]-
U031	71-36-3	n-Butyl alcohol (I)
U136	75-60-5	Cacodylic acid
U032	13765-19-0	Calcium chromate
U372	10605-21-7	Carbamic acid, 1H-benzimidazol-2-yl, methyl ester.
U271	17804-35-2	Carbamic acid, [1-[(butylamino)carbonyl]-1H-benzimidazol-2-yl]-, methyl ester.
U280	101-27-9	Carbamic acid, (3-chlorophenyl)-, 4-chloro-2-butynyl ester.
U238	51-79-6	Carbamic acid, ethyl ester

U178	615-53-2	Carbamic acid, methylnitroso-, ethyl ester
U373	122-42-9	Carbamic acid, phenyl-, 1-methylethyl ester.
U409	23564-05-8	Carbamic acid, [1,2-phenylenebis (iminocarbonothioyl)]bis-, dimethyl ester.
U097	79-44-7	Carbamic chloride, dimethyl-
U389	2303-17-5	Carbamothioic acid, bis(1-methylethyl)-, S-(2,3,3-trichloro-2-propenyl) ester.
U387	52888-80-9	Carbamothioic acid, dipropyl-, S-(phenylmethyl) ester.
U114	**\1** 111-54-6	Carbamodithioic acid, 1,2-ethanediylbis-, salts & esters
U062	2303-16-4	Carbamothioic acid, bis(1-methylethyl)-, S-(2,3-dichloro-2-propenyl) ester
U279	63-25-2	Carbaryl.
U372	10605-21-7	Carbendazim.
U367	1563-38-8	Carbofuran phenol.
U215	6533-73-9	Carbonic acid, dithallium(1+) salt
U033	353-50-4	Carbonic difluoride
U156	79-22-1	Carbonochloridic acid, methyl ester (I,T)
U033	353-50-4	Carbon oxyfluoride (R,T)
U211	56-23-5	Carbon tetrachloride
U034	75-87-6	Chloral
U035	305-03-3	Chlorambucil
U036	57-74-9	Chlordane, alpha & gamma isomers
U026	494-03-1	Chlornaphazin
U037	108-90-7	Chlorobenzene
U038	510-15-6	Chlorobenzilate
U039	59-50-7	p-Chloro-m-cresol
U042	110-75-8	2-Chloroethyl vinyl ether
U044	67-66-3	Chloroform
U046	107-30-2	Chloromethyl methyl ether
U047	91-58-7	beta-Chloronaphthalene
U048	95-57-8	o-Chlorophenol
U049	3165-93-3	4-Chloro-o-toluidine, hydrochloride
U032	13765-19-0	Chromic acid H2 CrO4, calcium salt
U050	218-01-9	Chrysene
U051	.....	Creosote

U052	1319-77-3	Cresol (Cresylic acid)
U053	4170-30-3	Crotonaldehyde
U055	98-82-8	Cumene (I)
U246	506-68-3	Cyanogen bromide (CN)Br
U197	106-51-4	2,5-Cyclohexadiene-1,4-dione
U056	110-82-7	Cyclohexane (I)
U129	58-89-9	Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1alpha,2alpha,3beta,4alpha,5alpha,6beta)-
U057	108-94-1	Cyclohexanone (I)
U130	77-47-4	1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-
U058	50-18-0	Cyclophosphamide
U240	**\1** 94-75-7	2,4-D, salts & esters
U059	20830-81-3	Daunomycin
U060	72-54-8	DDD
U061	50-29-3	DDT
U062	2303-16-4	Diallate
U063	53-70-3	Dibenz[a,h]anthracene
U064	189-55-9	Dibenzo[a,i]pyrene
U066	96-12-8	1,2-Dibromo-3-chloropropane
U069	84-74-2	Dibutyl phthalate
U070	95-50-1	o-Dichlorobenzene
U071	541-73-1	m-Dichlorobenzene
U072	106-46-7	p-Dichlorobenzene
U073	91-94-1	3,3'-Dichlorobenzidine
U074	764-41-0	1,4-Dichloro-2-butene (I,T)
U075	75-71-8	Dichlorodifluoromethane
U078	75-35-4	1,1-Dichloroethylene
U079	156-60-5	1,2-Dichloroethylene
U025	111-44-4	Dichloroethyl ether
U027	108-60-1	Dichloroisopropyl ether
U024	111-91-1	Dichloromethoxy ethane
U081	120-83-2	2,4-Dichlorophenol
U082	87-65-0	2,6-Dichlorophenol
U084	542-75-6	1,3-Dichloropropene
U085	1464-53-5	1,2:3,4-Diepoxybutane (I,T)
U108	123-91-1	1,4-Diethyleneoxide
U028	117-81-7	Diethylhexyl phthalate

U395	5952-26-1	Diethylene glycol, dicarbamate.
U086	1615-80-1	N,N'-Diethylhydrazine
U087	3288-58-2	O,O-Diethyl S-methyl dithiophosphate
U088	84-66-2	Diethyl phthalate
U089	56-53-1	Diethylstilbesterol
U090	94-58-6	Dihydrosafrole
U091	119-90-4	3,3'-Dimethoxybenzidine
U092	124-40-3	Dimethylamine (I)
U093	60-11-7	p-Dimethylaminoazobenzene
U094	57-97-6	7,12-Dimethylbenz[a]anthracene
U095	119-93-7	3,3'-Dimethylbenzidine
U096 (R)	80-15-9	alpha,alpha-Dimethylbenzylhydroperoxide
U097	79-44-7	Dimethylcarbamoyl chloride
U098	57-14-7	1,1-Dimethylhydrazine
U099	540-73-8	1,2-Dimethylhydrazine
U101	105-67-9	2,4-Dimethylphenol
U102	131-11-3	Dimethyl phthalate
U103	77-78-1	Dimethyl sulfate
U105	121-14-2	2,4-Dinitrotoluene
U106	606-20-2	2,6-Dinitrotoluene
U107	117-84-0	Di-n-octyl phthalate
U108	123-91-1	1,4-Dioxane
U109	122-66-7	1,2-Diphenylhydrazine
U110	142-84-7	Dipropylamine (I)
U111	621-64-7	Di-n-propylnitrosamine
U041	106-89-8	Epichlorohydrin
U001	75-07-0	Ethanal (I)
U404	121-44-8	Ethanamine, N,N-diethyl-
U174	55-18-5	Ethanamine, N-ethyl-N-nitroso-
U155	91-80-5	1,2-Ethanediamine, N,N-dimethyl-N'-2-pyridinyl-N'-(2-thienylmethyl)-
U067	106-93-4	Ethane, 1,2-dibromo-
U076	75-34-3	Ethane, 1,1-dichloro-
U077	107-06-2	Ethane, 1,2-dichloro-
U131	67-72-1	Ethane, hexachloro-
U024	111-91-1	Ethane, 1,1'-[methylenebis(oxy)]bis[2-chloro-

U117	60-29-7	Ethane, 1,1'-oxybis-(I)
U025	111-44-4	Ethane, 1,1'-oxybis[2-chloro-
U184	76-01-7	Ethane, pentachloro-
U208	630-20-6	Ethane, 1,1,1,2-tetrachloro-
U209	79-34-5	Ethane, 1,1,2,2-tetrachloro-
U218	62-55-5	Ethanethioamide
U226	71-55-6	Ethane, 1,1,1-trichloro-
U227	79-00-5	Ethane, 1,1,2-trichloro-
U410	59669-26-0	Ethanimidothioic acid, N,N'-[thiobis[(methylimino)carbonyloxy]]bis-, dimethyl ester
U394	30558-43-1	Ethanimidothioic acid, 2-(dimethylamino)-N-hydroxy-2-oxo-, methyl ester.
U359	110-80-5	Ethanol, 2-ethoxy-
U173	1116-54-7	Ethanol, 2,2'-(nitrosoimino)bis-
U395	5952-26-1	Ethanol, 2,2'-oxybis-, dicarbamate.
U004	98-86-2	Ethanone, 1-phenyl-
U043	75-01-4	Ethene, chloro-
U042	110-75-8	Ethene, (2-chloroethoxy)-
U078	75-35-4	Ethene, 1,1-dichloro-
U079	156-60-5	Ethene, 1,2-dichloro-, (E)-
U210	127-18-4	Ethene, tetrachloro-
U228	79-01-6	Ethene, trichloro-
U112	141-78-6	Ethyl acetate (I)
U113	140-88-5	Ethyl acrylate (I)
U238	51-79-6	Ethyl carbamate (urethane)
U117	60-29-7	Ethyl ether (I)
U114	**\1** 111-54-6	Ethylenebisdithiocarbamic acid, salts & esters
U067	106-93-4	Ethylene dibromide
U077	107-06-2	Ethylene dichloride
U359	110-80-5	Ethylene glycol monoethyl ether
U115	75-21-8	Ethylene oxide (I,T)
U116	96-45-7	Ethylenethiourea
U076	75-34-3	Ethylidene dichloride
U118	97-63-2	Ethyl methacrylate
U119	62-50-0	Ethyl methanesulfonate

U120	206-44-0	Fluoranthene
U122	50-00-0	Formaldehyde
U123	64-18-6	Formic acid (C,T)
U124	110-00-9	Furan (I)
U125	98-01-1	2-Furancarboxaldehyde (I)
U147	108-31-6	2,5-Furandione
U213	109-99-9	Furan, tetrahydro-(I)
U125	98-01-1	Furfural (I)
U124	110-00-9	Furfuran (I)
U206	18883-66-4	Glucopyranose, 2-deoxy-2-(3-methyl-3-nitrosoureido)-, D-
U206	18883-66-4	D-Glucose, 2-deoxy-2-[[(methylnitrosoamino)-carbonyl]amino]-
U126	765-34-4	Glycidylaldehyde
U163	70-25-7	Guanidine, N-methyl-N'-nitro-N-nitroso-
U127	118-74-1	Hexachlorobenzene
U128	87-68-3	Hexachlorobutadiene
U130	77-47-4	Hexachlorocyclopentadiene
U131	67-72-1	Hexachloroethane
U132	70-30-4	Hexachlorophene
U243	1888-71-7	Hexachloropropene
U133	302-01-2	Hydrazine (R,T)
U086	1615-80-1	Hydrazine, 1,2-diethyl-
U098	57-14-7	Hydrazine, 1,1-dimethyl-
U099	540-73-8	Hydrazine, 1,2-dimethyl-
U109	122-66-7	Hydrazine, 1,2-diphenyl-
U134	7664-39-3	Hydrofluoric acid (C,T)
U134	7664-39-3	Hydrogen fluoride (C,T)
U135	7783-06-4	Hydrogen sulfide
U135	7783-06-4	Hydrogen sulfide H<INF>2</INF> S
U096 (R)	80-15-9	Hydroperoxide, 1-methyl-1-phenylethyl-
U116	96-45-7	2-Imidazolidinethione
U137	193-39-5	Indeno[1,2,3-cd]pyrene
U190	85-44-9	1,3-Isobenzofurandione
U140	78-83-1	Isobutyl alcohol (I,T)
U141	120-58-1	Isosafrole
U142	143-50-0	Kepone

U143	303-34-4	Lasiocarpine
U144	301-04-2	Lead acetate
U146	1335-32-6	Lead, bis(acetato-O)tetrahydroxytri-
U145	7446-27-7	Lead phosphate
U146	1335-32-6	Lead subacetate
U129	58-89-9	Lindane
U163	70-25-7	MNNG
U147	108-31-6	Maleic anhydride
U148	123-33-1	Maleic hydrazide
U149	109-77-3	Malononitrile
U150	148-82-3	Melphalan
U151	7439-97-6	Mercury
U152	126-98-7	Methacrylonitrile (I, T)
U092	124-40-3	Methanamine, N-methyl- (I)
U029	74-83-9	Methane, bromo-
U045	74-87-3	Methane, chloro- (I, T)
U046	107-30-2	Methane, chloromethoxy-
U068	74-95-3	Methane, dibromo-
U080	75-09-2	Methane, dichloro-
U075	75-71-8	Methane, dichlorodifluoro-
U138	74-88-4	Methane, iodo-
U119	62-50-0	Methanesulfonic acid, ethyl ester
U211	56-23-5	Methane, tetrachloro-
U153	74-93-1	Methanethiol (I, T)
U225	75-25-2	Methane, tribromo-
U044	67-66-3	Methane, trichloro-
U121	75-69-4	Methane, trichlorofluoro-
U036	57-74-9	4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-
U154	67-56-1	Methanol (I)
U155	91-80-5	Methapyrilene
U142	143-50-0	1,3,4-Metheno-2H-cyclobuta[cd]pentalen-2-one, 1,1a,3,3a,4,5,5,5a,5b,6-decachlorooctahydro-
U247	72-43-5	Methoxychlor
U154	67-56-1	Methyl alcohol (I)
U029	74-83-9	Methyl bromide
U186	504-60-9	1-Methylbutadiene (I)

U045	74-87-3	Methyl chloride (I,T)
U156	79-22-1	Methyl chlorocarbonate (I,T)
U226	71-55-6	Methyl chloroform
U157	56-49-5	3-Methylcholanthrene
U158	101-14-4	4,4'-Methylenebis(2-chloroaniline)
U068	74-95-3	Methylene bromide
U080	75-09-2	Methylene chloride
U159	78-93-3	Methyl ethyl ketone (MEK) (I,T)
U160	1338-23-4	Methyl ethyl ketone peroxide (R,T)
U138	74-88-4	Methyl iodide
U161	108-10-1	Methyl isobutyl ketone (I)
U162	80-62-6	Methyl methacrylate (I,T)
U161	108-10-1	4-Methyl-2-pentanone (I)
U164	56-04-2	Methylthiouracil
U010	50-07-7	Mitomycin C
U059	20830-81-3	5,12-Naphthacenedione, 8-acetyl-10-[(3-amino-2,3,6-trideoxy)-alpha-L-lyxo-hexopyranosyl)oxy]-7,8,9,10-tetrahydro-6,8,11-trihydroxy-1-methoxy-, (8S-cis)-
U167	134-32-7	1-Naphthalenamine
U168	91-59-8	2-Naphthalenamine
U026	494-03-1	Naphthalenamine, N,N'-bis(2-chloroethyl)-
U165	91-20-3	Naphthalene
U047	91-58-7	Naphthalene, 2-chloro-
U166	130-15-4	1,4-Naphthalenedione
U236	72-57-1	2,7-Naphthalenedisulfonic acid, 3,3'-[(3,3'-dimethyl[1,1'-biphenyl]-4,4'-diyl)bis(azo)bis[5-amino-4-hydroxy]-,tetrasodium salt
U279	63-25-2	1-Naphthalenol, methylcarbamate.
U166	130-15-4	1,4-Naphthoquinone
U167	134-32-7	alpha-Naphthylamine
U168	91-59-8	beta-Naphthylamine
U217	10102-45-1	Nitric acid, thallium(1+) salt
U169	98-95-3	Nitrobenzene (I,T)
U170	100-02-7	p-Nitrophenol
U171	79-46-9	2-Nitropropane (I,T)
U172	924-16-3	N-Nitrosodi-n-butylamine

U173	1116-54-7	N-Nitrosodiethanolamine
U174	55-18-5	N-Nitrosodiethylamine
U176	759-73-9	N-Nitroso-N-ethylurea
U177	684-93-5	N-Nitroso-N-methylurea
U178	615-53-2	N-Nitroso-N-methylurethane
U179	100-75-4	N-Nitrosopiperidine
U180	930-55-2	N-Nitrosopyrrolidine
U181	99-55-8	5-Nitro-o-toluidine
U193	1120-71-4	1,2-Oxathiolane, 2,2-dioxide
U058	50-18-0	2H-1,3,2-Oxazaphosphorin-2-amine, N,N-bis(2-chloroethyl)tetrahydro-, 2- oxide
U115	75-21-8	Oxirane (I,T)
U126	765-34-4	Oxiranecarboxyaldehyde
U041	106-89-8	Oxirane, (chloromethyl)-
U182	123-63-7	Paraldehyde
U183	608-93-5	Pentachlorobenzene
U184	76-01-7	Pentachloroethane
U185	82-68-8	Pentachloronitrobenzene (PCNB)
See F027	87-86-5	Pentachlorophenol
U161	108-10-1	Pentanol, 4-methyl-
U186	504-60-9	1,3-Pentadiene (I)
U187	62-44-2	Phenacetin
U188	108-95-2	Phenol
U048	95-57-8	Phenol, 2-chloro-
U039	59-50-7	Phenol, 4-chloro-3-methyl-
U081	120-83-2	Phenol, 2,4-dichloro-
U082	87-65-0	Phenol, 2,6-dichloro-
U089	56-53-1	Phenol, 4,4'-(1,2-diethyl-1,2-ethenediyl)bis-, (E)-
U101	105-67-9	Phenol, 2,4-dimethyl-
U052	1319-77-3	Phenol, methyl-
U132	70-30-4	Phenol, 2,2'-methylenebis[3,4,6- trichloro-
U411	114-26-1	Phenol, 2-(1-methylethoxy)- ,methylcarbamate.
U170	100-02-7	Phenol, 4-nitro-
See F027	87-86-5	Phenol, pentachloro-
See F027	58-90-2	Phenol, 2,3,4,6-tetrachloro-
See F027	95-95-4	Phenol, 2,4,5-trichloro-

See F027	88-06-2	Phenol, 2,4,6-trichloro-
U150	148-82-3	L-Phenylalanine, 4-[bis(2-chloroethyl)amino]-
U145	7446-27-7	Phosphoric acid, lead(2+) salt (2:3)
U087	3288-58-2	Phosphorodithioic acid, O,O-diethyl S-methyl ester
U189	1314-80-3	Phosphorus sulfide (R)
U190	85-44-9	Phthalic anhydride
U191	109-06-8	2-Picoline
U179	100-75-4	Piperidine, 1-nitroso-
U192	23950-58-5	Pronamide
U194	107-10-8	1-Propanamine (I,T)
U111	621-64-7	1-Propanamine, N-nitroso-N-propyl-
U110	142-84-7	1-Propanamine, N-propyl- (I)
U066	96-12-8	Propane, 1,2-dibromo-3-chloro-
U083	78-87-5	Propane, 1,2-dichloro-
U149	109-77-3	Propanedinitrile
U171	79-46-9	Propane, 2-nitro- (I,T)
U027	108-60-1	Propane, 2,2'-oxybis[2-chloro-
U193	1120-71-4	1,3-Propane sultone
See F027	93-72-1	Propanoic acid, 2-(2,4,5-trichlorophenoxy)-
U235	126-72-7	1-Propanol, 2,3-dibromo-, phosphate(3:1)
U140	78-83-1	1-Propanol, 2-methyl- (I,T)
U002	67-64-1	2-Propanone (I)
U007	79-06-1	2-Propenamide
U084	542-75-6	1-Propene, 1,3-dichloro-
U243	1888-71-7	1-Propene, 1,1,2,3,3,3-hexachloro-
U009	107-13-1	2-Propenenitrile
U152	126-98-7	2-Propenenitrile, 2-methyl- (I,T)
U008	79-10-7	2-Propenoic acid (I)
U113	140-88-5	2-Propenoic acid, ethyl ester (I)
U118	97-63-2	2-Propenoic acid, 2-methyl-, ethyl ester
U162	80-62-6	2-Propenoic acid, 2-methyl-, methyl ester (I,T)
U373	122-42-9	Propham.
U411	114-26-1	Propoxur.
U387	52888-80-9	Prosulfocarb.

U194	107-10-8	n-Propylamine (I,T)
U083	78-87-5	Propylene dichloride
U148	123-33-1	3,6-Pyridazinedione, 1,2-dihydro-
U196	110-86-1	Pyridine
U191	109-06-8	Pyridine, 2-methyl-
U237	66-75-1	2,4-(1H,3H)-Pyrimidinedione, 5-[bis(2-chloroethyl)amino]-
U164	56-04-2	4(1H)-Pyrimidinone, 2,3-dihydro-6-methyl-2-thioxo-
U180	930-55-2	Pyrrolidine, 1-nitroso-
U200	50-55-5	Reserpine
U201	108-46-3	Resorcinol
U202	**\1** 81-07-2	Saccharin, & salts
U203	94-59-7	Safrole
U204	7783-00-8	Selenious acid
U204	7783-00-8	Selenium dioxide
U205	7488-56-4	Selenium sulfide
U205	7488-56-4	Selenium sulfide SeS<INF>2</INF> (R,T)
U015	115-02-6	L-Serine, diazoacetate (ester)
See F027	93-72-1	Silvex (2,4,5-TP)
U206	18883-66-4	Streptozotocin
U103	77-78-1	Sulfuric acid, dimethyl ester
U189	1314-80-3	Sulfur phosphide (R)
See F027	93-76-5	2,4,5-T
U207	95-94-3	1,2,4,5-Tetrachlorobenzene
U208	630-20-6	1,1,1,2-Tetrachloroethane
U209	79-34-5	1,1,2,2-Tetrachloroethane
U210	127-18-4	Tetrachloroethylene
See F027	58-90-2	2,3,4,6-Tetrachlorophenol
U213	109-99-9	Tetrahydrofuran (I)
U214	563-68-8	Thallium(I) acetate
U215	6533-73-9	Thallium(I) carbonate
U216	7791-12-0	Thallium(I) chloride
U216	7791-12-0	Thallium chloride Tlcl
U217	10102-45-1	Thallium(I) nitrate
U218	62-55-5	Thioacetamide
U410	59669-26-0	Thiodicarb.
U153	74-93-1	Thiomethanol (I,T)

U244	137-26-8	Thioperoxydicarbonic diamide [(H2N)C(S)] 2S2, tetramethyl-
U409	23564-05-8	Thiophanate-methyl.
U219	62-56-6	Thiourea
U244	137-26-8	Thiram
U220	108-88-3	Toluene
U221	25376-45-8	Toluenediamine
U223	26471-62-5	Toluene diisocyanate (R,T)
U328	95-53-4	o-Toluidine
U353	106-49-0	p-Toluidine
U222	636-21-5	o-Toluidine hydrochloride
U389	2303-17-5	Triallate.
U011	61-82-5	1H-1,2,4-Triazol-3-amine
U227	79-00-5	1,1,2-Trichloroethane
U228	79-01-6	Trichloroethylene
U121	75-69-4	Trichloromonofluoromethane
See F027	95-95-4	2,4,5-Trichlorophenol
See F027	88-06-2	2,4,6-Trichlorophenol
U404	121-44-8	Triethylamine.
U234	99-35-4	1,3,5-Trinitrobenzene (R,T)
U182	123-63-7	1,3,5-Trioxane, 2,4,6-trimethyl-
U235	126-72-7	Tris(2,3-dibromopropyl) phosphate
U236	72-57-1	Trypan blue
U237	66-75-1	Uracil mustard
U176	759-73-9	Urea, N-ethyl-N-nitroso-
U177	684-93-5	Urea, N-methyl-N-nitroso-
U043	75-01-4	Vinyl chloride
U248	**\1** 81-81-2	Warfarin, & salts, when present at concentrations of 0.3% or less
U239	1330-20-7	Xylene (I)
U200	50-55-5	Yohimban-16-carboxylic acid, 11,17-dimethoxy-18-[(3,4,5-trimethoxybenzoyl)oxy]-, methyl ester, (3beta,16beta,17alpha,18beta,20alpha)-
U249	1314-84-7	Zinc phosphide Zn3P2, when present at concentrations of 10% or less

\1\ CAS Number given for parent compound only.

(U list modified from online CFRs at http://www.access.gpo.gov/nara/cfr/waisidx_00/40cfr261_00.html)

Appendix G - Peroxide Forming Chemicals

Peroxide forming chemicals have the potential of becoming violently explosive and may require special handling at the time of disposal. Thus, it is very important to consult TSO before placing any peroxide forming chemicals into a SAA. All peroxidizable chemicals including those listed below, must be dated upon receipt at ISU. Storage and use must be limited in the appropriate time (expiration date), and may require other special conditions, such as temperature control in an explosion-proof refrigerator.

Proper storage practices for peroxide forming chemicals include:

- label containers with receipt and expiration dates
- storage in airtight containers in a cool, dark, and dry place
- disposal BEFORE expiration date.

The following is a *partial* list of peroxide forming chemicals. The best way to know if a chemical is peroxide forming is to consult the MSDS. Those most commonly used at ISU are in **boldface** type.

Acetaldehyde
Acrylaldedyde
Acrylonitrile
Benzyl alcohol
Butadiene
2-Butanol
Chlorobutadiene (Chloroprene)
Chlorotrifluoroethylene
Crotonaldehyde
Cumene
Cyclohexene
p-Dioxane
Dicyclopentadiene
Diethyl ether
Dioxane
Divinyl acetylene
Ethylbenzene
Vinyl chloride
Vinyl ether
Vinyl pyridine
Vinylidene chloride
Ethylene glycol dimethyl ether (glyme)
Isopropyl ether
Methyl acetylene
3-Methyl-1-butanol
Methylcyclopentane
1-Octene
Potassium
1-Pentene
2-Pentanone
3-Pentanone
2-Propanol
Sodium amide
Styrene
Tetrafluoroethylene
Tetrahydrofuran
Tetrahydronaphthalene
Vinyl acetate

Appendix H - Shock Sensitive Chemicals

Due to the danger involved with handling shock sensitive chemicals, TSO must be notified **BEFORE** any shock sensitive materials are placed in a SAA. The following is a *partial* list of common shock sensitive and explosive materials. The best way to know if a chemical is shock sensitive is to consult the MSDS.

acetylides of heavy metalsaluminum ophorite explosive amatol ammonal ammonium nitrate ammonium perchlorate ammonium picrate azoxybenzenebutyl tetryl calcium nitrate copper acetylide cyanuric triazide cyclotrimethylenetrinitramine diazomethane
dimethyl amino azobenzene-2-naphthalene
2,3-dimethyl azobenzenedinitroethyleneurea dinitroglycerine dinitrophenol dinitrophenolates dinitrophenyl hydrazine dinitrotoluene dipicrylamine dipicryl sulfone erythritol tetranitrate fulminate of silver fulminating gold fulminating platinum gelatinized nitrocellulose guanyl nitrosamino perchlorate salts picramic acid picramide picric acid picryl chloride picryl fluoride organic amine nitrates organic peroxides potassium nitroaminotetrazole robenzoic acid silver acetylide, azide, fulminate, styphnate, tetrazene sodatol sodium amatol, dinitro-ortho-cresolate, picramate, syphnic acid tetranitrocarbazole
guanyltetrazene guanyl nitrosamino guanylidene guanylidene hydrazinehydrazoic acid heavy metal azide hexanite hexanitrodiphenylamine hexanitrostilbene hexogen hyrazinium nitrate lead azide, mannite, mononitroresorcinate, picrate, styphnate magnesium ophorite mannitol hexanitrate mercury oxalate, fulminate, tartrate nitrated carbohydrate nitrated glucoside
nitrocellulosenitrogen triiodide, trichloride nitroglycerin nitroglycide nitroglycol nitroguanidine nitronium perchlorate nitroparaffins nitrotoluene nitrourea organic nitramines

tetraze
tetrytol trinitroanisole trinitrobenzene trinit trimonite trinitronaphthalene trinitrophenetol trinitrotoluene urea nitrate

Appendix I - Water Reactive Chemicals

Water reactive chemicals may react with water to create flammable or toxic gases. These materials must be segregated before being placed into a SAA.

Recommended storage practices:

- label the contents as being water reactive
- store in a cool, dry place
- keep water away in case of fire.

The following is a *partial* list of water reactive chemicals. Those most commonly found at ISU are in **boldface** type.

acetyl chloride
aluminum chloride, anhydrous
calcium carbide
calcium oxide
chlorosulfonic acid
ferrous sulfide
lithium
magnesium
maleic anhydride
phosphorous pentachloride
phosphorous pentasulfide
phosphorous trichloride
potassium
silicon tetrachloride
sodium
stannic chloride
sulfur chloride
sulfuryl chloride
thionyl chloride

Appendix J - Pyrophoric Chemicals

Some chemicals react spontaneously either with air or exposure to moisture in the air, and may produce either heat, fire, flammable reaction product, or toxic fumes. TSO should be notified before pyrophoric chemicals are placed into a SAA.

The following is a *partial* list of pyrophoric chemicals. The best way to know if a chemical is pyrophoric is to consult the MSDS.

arsine
boron
cadmium
calcium
chromium
cobalt
diborane
dichloroborane
2-furaldehyde
iron
lead
lithium
manganese
nickel
phosphine
phosphorous, yellow
potassium metal
silane
sodium metal
titanium
zinc

Appendix K - City of Pocatello NPDES Chemicals of Concern

The City of Pocatello has identified certain chemicals and their maximum concentrations that must not be exceeded at their wastewater pre-treatment facilities. The values found in 40 CFR 403.7 are adopted by the City. In addition, some concentration values below those listed in the Federal Code have been adopted. These substances and their concentrations (if identified) are shown below.

POLLUTANT	**LIMIT (mg/L)**
arsenic	0.06
cadmium	0.2
chromium (total)	2.8
copper	0.5
cyanide	0.2
fluoride	32.0
lead	0.3
mercury	0.0006
nickel	1.0
silver	0.6
zinc	1.2

Appendix L - Chain of Custody Form

The following is an example of a Chain of Custody form. Please note that the *Transfer* and *Destination* columns are for TSO use only and that the SAA manager should sign the *Relinquished By* line before TSO removes the waste from the SAA.

Appendix M - SAA Inspection Record

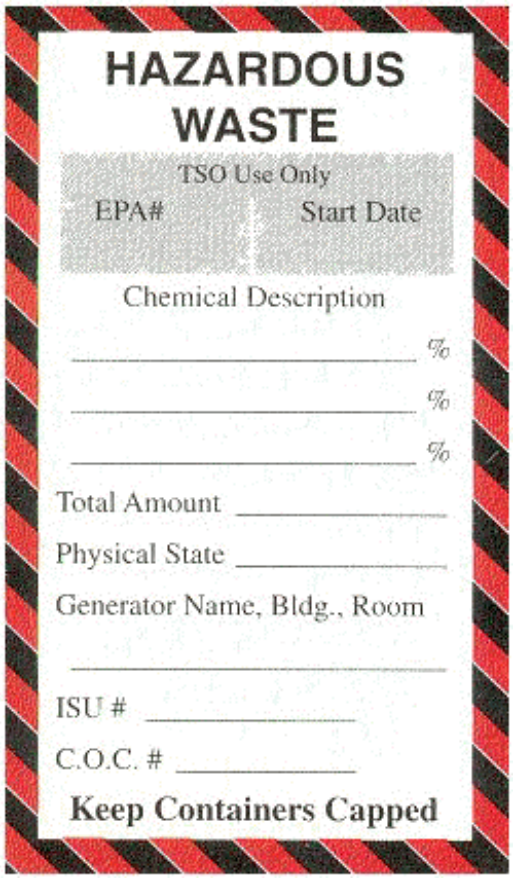
The following is an example of a SAA Inspection Record. SAA managers use this form to verify that the SAA has been inspected on a weekly basis and that the contents of the SAA meet regulatory requirements.

During their weekly inspections, SAA managers should check the following:

- All containers are properly capped
- Signs of leaks, corrosion or damage to containers
- All containers have a label
- All containers are in a secondary container
- Hazardous wastes in the secondary container are compatible
- Labeled containers on the COC form

Appendix N - Chemical Labels

The following are examples of chemical labels. The "Hazardous Chemical" label is primarily used for acids and bases that can be neutralized by the departments. This is the only treatment that ISU is allowed to perform and departments have been instructed as to which acids and bases may be neutralized. The "Hazardous Waste" label is used to indicated that a container contains regulated hazardous waste and needs disposal through TSO. All containers in an SAA must be labeled with one of these two labels, or the words "Hazardous Waste".



Appendix O - Emergency Spill Response Instructions

During Normal Duty hours (8 a.m. to 5 p.m. M-F)

First:

Call extension 2310 (282-2310 if off campus) and ask for any available hazardous waste staff member.

If there is NO answer:

Call extension 2667 (282-2667 if off campus) and ask for the TSO director.

If there is still NO answer follow procedures for off-duty hours.

Off-Duty Hours

Call Campus Security at ext. 2515 (282-2515 if off campus).

Be prepared to provide the building name, building number, street address, specific location (floor and room number) within the building, and the chemicals involved (if known). Give as much information as possible to the responding person and be sure to leave your name and number as a point of contact.

Appendix P - Emergency Notification Form

Emergency notification forms are on the SAA binders to provide information concerning emergency spill assistance. They also provide the SAA number to TSO personnel.

Appendix Q - SAA Label

SAA labels are required to be posted to show that a room or area contains a Satellite Accumulation Area. This also alerts non-university emergency responders that the area contains known hazardous wastes. The labels provided by the TSO are typically bright orange/yellow with black lettering.

Appendix R - SAA Registration / Termination or Information Form

Appendix S - Frequently Asked Questions

What happens to broken glass?
It is highly recommended that broken glass be placed into puncture resistant containers before putting it into ordinary trash. After the broken glass containers are full they are sealed and put into the dumpster.

If the glassware is contaminated with a P-listed hazardous waste, it must be triple rinsed (putting the rinse water into a hazardous waste container and labeling it) and then placed into a broken glass container or another puncture resistant container before putting it into ordinary trash.

It is also acceptable to place the broken glass into the spill cleanup container if it is puncture resistant.

Who is responsible for chemical safety?
Each department is individually responsible for the safe use and acquisition of chemicals. The TSO provides training on chemical safety as it pertains to hazardous waste. TSO may lend training materials to departments upon request.

How do I fill out a hazardous waste label?
Enter the chemical contents in written English. Chemical formulas are not acceptable. If the concentrations of the constituents are known, note them as well. Assign the bottle an ISU #. We suggest using the room number, dash, bottle number (ie 215-1, 215-2, etc.). The same ISU # on more than one Chain of Custody. Each Chain of Custody has an identifying number, which should also be placed on the label (COC line), this creates a unique combination for our records. The physical amount should be approximated and entered with the appropriate units, and the physical state (solid, liquid, or gas) should be noted on the label. The SAA Manager's Name, Bldg., and Room # should also be entered.

The hazardous waste label is too big for the bottle, what should I do?
The best solution to this problem is to write the words "Hazardous Waste" on the label of the bottle if it shows the contents. The bottle should also be assigned a bottle number and entered on the chain of custody form.

The bottle can also be placed in a sealed bag with the hazardous waste label attached to the bag. The hazardous waste label may also be partially attached to the bottle by exposing a small amount

of the adhesive backing. Be sure the label will stay on the bottle and that the bottle can stand up properly. The bottle can also be placed in a sealed bag with the Hazardous Waste Label attached to the bag.

How do I arrange for a hazardous waste pickup?
If your laboratory has a SAA, TSO personnel monitor for needed waste pickups and will be there when it is time to be emptied. TSO normally cleans out all SAAs at the end of each semester, during shipment times, whether or not the containers are full. If you need something removed sooner, simply call TSO and ask for a waste pickup. Please note that TSO staff need time to coordinate the pickup.

How full can I fill a waste container?
Since most wastes are consolidated into drums at the time of shipment, we ask that contents do not completely fill the container. Please leave a small head-space. A few inches or the neck is usually sufficient on containers larger than 4L.

Where can I find MSDSs?
If the original MSDS is not kept somewhere in the department, usually the stockroom or with a department safety manager, MSDS may be obtained from the manufacturer of the chemical, from the internet, or from the TSO.

How is infectious waste regulated?
TSO has developed a separate manual for infectious waste management, also known as medical waste and bio-waste. Copies of this manual may be requested by calling x2310.

What happens to empty containers?
RCRA defines a container as empty if no more than 1 inch of residue remains or 3% by weight from acute hazardous wastes if the container is less than 110 G in size. Empty containers that have not contained a P-listed waste may be thrown into ordinary trash, however we recommend first rinsing them and destroying the container to prevent future use. Empty containers that have held P-listed wastes must be triple rinsed with an appropriate solvent before disposal and the rinse water must be disposed of as hazardous waste. During a hazardous waste shipment, ISU crushes all glass containers and plastic containers and they are sent to a RCRA landfill as non-regulated waste. TSO is happy to keep empty containers for future waste storage at your request, however we do not have the facilities to store them for extended periods of time.

There is a car accident in the road, do I call TSO to clean up the gasoline and other fluids?

City streets are not ISU property and thus not the responsibility of ISU to clean up. However, TSO has assisted Pocatello Fire Department in the past by preventing gasoline from getting in to the wastewater drainage system. If the accident is in and ISU parking lot or on ISU property, then yes, TSO should be called for a hazardous waste clean up.

Is waste generated in dormitories regulated?
If the waste is generated by an activity or function of ISU, or from ISU equipment, then we dispose of it as hazardous waste. If the waste is generated from a student's personal use, such as hairspray (flammable), then ISU considers it household waste and it is not regulated.

Appendix T - Regulatory Status of Spent Batteries

Battery type	Hazardous waste	Recyclable	Notes	Disposal
Alkaline	no	no	most common	ordinary trash
Carbon zinc	no	no	labeled general purpose, heavy duty or	ordinary trash
Zinc air	no	no	Button size, pin holes on bottom	ordinary trash
Lithium	yes	no	button size, larger sizes, rechargeables	contact TSO / universal hazardous
Lead acid	yes	yes	automotive batteries (not hazardous if	contact TSO for listing of local recyclers
Sealed Lead acid	yes	yes	cell phone, camcorder batteries	contact TSO / universal hazardous
Nickel cadmium	yes	yes	rechargeable batteries	contact TSO / universal hazardous
Mercuric oxide	yes	yes	button size	contact TSO / universal hazardous
Silver oxide	yes	yes	button size	contact TSO / universal hazardous

Appendix U - F Listed Wastes

The following are hazardous wastes from non-specific sources commonly found at ISU.

F001

The following spent halogenated solvents used in degreasing: Tetrachloroethylene, trichloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, and chlorinated fluorocarbons; all spent solvent mixtures/blends used in degreasing containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those solvents listed in F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.

F002

The following spent halogenated solvents: Tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1- trichloroethane, chlorobenzene, 1,1,2- trichloro-1,2,2-trifluoroethane, ortho- dichlorobenzene, trichlorofluoromethane, and 1,1,2-trichloroethane; all spent solvent mixtures/ blends containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those listed in F001, F004, or F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.

F003

The following spent non- halogenated solvents: Xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol; all spent solvent mixtures/blends containing, before use, only the above spent non- halogenated solvents; and all spent solvent mixtures/blends containing, before use, one or more of the above non-halogenated solvents, and, a total of ten percent or more (by volume) of one or more of those solvents listed in F001, F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.

F004

The following spent non-halogenated solvents: Cresols and cresylic acid, and nitrobenzene; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.

F005

The following spent non-halogenated solvents: Toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, benzene, 2- ethoxyethanol, and 2- nitropropane; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002, or F004; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.