**SOUTHWEST MINNESOTA STATE UNIVERSITY**

**Hazardous Waste Management Plan**

**PROCEDURE STATEMENT:** The purpose of Hazardous Waste Management is to prevent the procurement of hazardous materials and the creation of all hazardous waste, but if that cannot be accomplished, the campus must be able to minimize and properly dispose of the waste that is generated.Southwest Minnesota State University (SMSU) is required to manage hazardous wastes in a safe and environmentally sound manner by Federal, State, and local regulations. As a generator of hazardous waste, we are responsible for ensuring that employees follow University guidelines concerning management and disposal of hazardous waste within the laboratory, shop or service areas.

**PROCEDURES:** The following procedures explain the steps needed to comply with the University policy concerning management and disposal of hazardous waste within the laboratories, shops, or service areas. The following procedures also explain the steps needed to comply with University rules on how to handle hazardous waste, and how to prepare for chemical spill emergencies. They are presented to give SMSU employees a better understanding of how to manage chemical wastes.

1. The “10 Steps at SMSU for Hazardous Waste Compliance”
* SMSU has evaluated our waste streams.
* SMSU utilizes the U of MN Chemical Day Program to manage our waste.
* SMSU pays a fee and has a hazardous waste license.
* SMSU hazardous waste containers are clearly marked.
* SMSU stores hazardous waste correctly.
* SMSU hazardous waste is transported and disposed of correctly.
* Manifests are prepared for shipments of hazardous waste.
* SMSU has a plan for hazardous waste emergencies.
* SMSU trains their employees on Hazardous Waste.
* SMSU keeps records of hazardous waste.
1. SMSU uses the U of MN Chemical Safety Day Program, which requires completion of the forms used to package material/waste safely. How to properly dispose of Hazardous Waste:
2. The supervisor in each department will conduct an inventory of the products in their area for disposal.
3. Weekly inspections will be performed on all hazardous waste storage containers. **(See attached Hazardous Waste Weekly Inspection Form (1).)**
4. Primary Department Contacts:

Chemistry: John Hansen and James Carver

Biology: Betsy Desy

Physics: Ken Murphy

Health Services: Valerie Dallenbach

Art: Bob Dorlac

Paint: Layne Turner

Maintenance: Laura Bottin, Pat Daniels

d.The products from the campus need to be labeled clearly as to their contents; provide MSDS if possible and the department where they were generated. However, the best option is to use products up to avoid the disposal costs. When disposing of hazardous waste, it is required to complete the proper/applicable form A, B, C, or D. **(See attachments: Hazardous Waste, form A: Pure Chemical Manifest; Hazardous Waste, form B: Chemical Mixture Manifest; Hazardous Waste, form C: Commercial Product Manifest; Hazardous Waste, form D: Unknown Laboratory Sample Manifest.)**

1. Universal Waste Products are secured and store in the following locations until disposal :

Used or Broken Fluorescent light bulbs: Recycle Lights Science and Math Basement

Batteries: Science and math Basement

Used oil, used oil filters, sorbents (floor dry) and rags: Physical Plant

If you have any questions, please call Dave Hemp, Safety Director: 507-537-6470.

1. Who is covered in this policy: Any employee who:
* Uses chemicals and may have the need to dispose of chemical waste.
* Supervises employees or students that work with chemicals.
* Fills out waste packing forms or labels for hazardous waste containers.
* Transports hazardous waste.
* Trains others in proper hazardous waste management at SMSU.
* Responds or assists in the response to chemical releases or spills.
* Controls a program, process, or piece of equipment that generates a hazardous waste, releases chemicals into the air, sanitary sewer, or surface waters of the State of Minnesota.
1. Waste Minimization:

SMSU is committed to the protection of human health and the environment. To meet these commitments, the University strongly encourages its employees to utilize chemical waste minimization techniques to reduce the volume and toxicity of chemical wastes produced at SMSU. An important benefit from waste minimization is that it will help reduce the University’s escalating chemical disposal costs. The following sections describe common waste minimization techniques.

1. Inventory Management and Control:
* Audit chemical supplies and use inventory control.
* Survey all the chemicals in your labs, shops and storerooms and dispose of those chemicals that have not been used within the past year or two.
* Purchase only the quantity of chemical required for specific projects.
* If you have chemicals stored in a “shared” storeroom, take responsibility to redistribute or dispose of those old chemicals left by personnel or students no longer at the University.
* When purchasing automated equipment, use the type and amount of hazardous waste generated by the machine as one of the purchasing criteria.
1. Ways to reduce Hazardous Waste at SMSU:
* Waste-stream segregation: Mixing hazardous waste with other waste creates a bigger waste problem. Waste-stream segregation is an extremely easy way and important method to cut back on the amount of hazardous waste generated. Waste segregation also makes it easier to reuse and recycle wastes.
* Practice good housekeeping: Careful operating and transferring chemicals can help prevent spills and leaks. Careful monitoring can help keep down waste generation from preparing excess raw materials or from careless use of products and materials. Check to see if all of the equipment is running properly. Are there leaks in the system that causes waste?
* Substitution: Whenever possible, substitute non-hazardous materials for hazardous materials. Substitute water based paints for oil or solvent based paints. Often a product that creates a hazardous waste is used simply because it is more convenient, traditional, or is promoted by a certain supplier. When a variety of products can be used to perform the same job, the least hazardous product should be chosen. Encourage suppliers to provide products that do not become hazardous wastes.
* Improved Operations and Process Modifications: Have production and maintenance staff members look for ways to improve the efficiency of the current operations and reduce waste. We should always be on the lookout for new processes that do not create hazardous waste. If there is thought of purchasing new machinery or a change of process in some way, factor waste generation into your decision. A process that creates less hazardous waste or that recycles hazardous waste as an integral step in the process can result in significant savings. At the same time, liabilities will be limited.
* Recycling: Many wastes are amenable to recycling or reclamation. Recycling is an important and generally an environmentally sound waste management option for generators.
* Do not dispose of hazardous waste by evaporation, sewer, trash:

Caution: Never throw hazardous chemicals in the trash! Never pour hazardous chemicals down sinks, toilets, floor drains or onto the ground! You can be held criminally liable for purposely misrepresenting the contents of your wastes and improperly disposing of your wastes! No matter how “harmless” the chemical NEVER throw chemicals down the drain, out in the trash, or out in the environment. Remember, you will be held liable.

1. What must be done:
* Use pollution prevention techniques to reduce the amount of hazardous waste generated.

Use microscale techniques, non hazardous chemical substitutes, or process modification to reduce the amount of waste generated.

* Contact your peers, professional organizations, or vendors to learn about the latest pollution prevention techniques.
* Share unused chemicals within your department.
* Train your employees and students in pollution prevention techniques.
* Use the Chemical Redistribution Program to recycle unused chemicals.
1. Listed Hazardous Waste:

 EPA and MPCA regulations list approximately 450 commercial or off-specification chemicals, waste streams, or their spill residues which must be handled as hazardous wastes due to their acute or chronic toxicity. Of special interest are those chemicals with an EPA Waste Code beginning with the letter “P.” when these chemicals are disposed of, there are more stringent on-site storage requirements and the empty containers must be triple-rinsed before discarding as trash.

1. Other Criteria:

SMSU has also chosen to manage as hazardous waste certain chemicals which may not technically be considered hazardous waste under the hazardous waste regulations. Such chemicals have sufficient mutagenic, tertogenic, carcinogenic, or reproductive hazards that they warrant such special handling (e.g., ethidium bromide). In general, waste streams containing greater than 1ppm of these wastes should be deactivated in the laboratory.

1. Process Modification:

To the extent that process modification does not affect vital research, teaching, or modify experiments to decrease the quantity of hazardous chemicals used and generated. Micro analysis techniques can greatly reduce the amount of waste generated. An example of this is the use of microscale chemistry in entry level teaching laboratories. Also, new equipment can reduce the amount of waste generated. For example, new high performance liquid chromatography (HPLC) machines use microprocessors to reduce the amount of waste generated. Maintenance shops or service areas such as heavy equipment shops, printing and/or graphics should also utilize pollution prevention techniques. Contact these departments on ok nonhazardous substitutes.

1. Neutralization and Deactivation:

Some laboratories generate a simple, pure chemical stream, such as a dilute acid or base that can be rendered nonhazardous by simple neutralization. Other labs may generate a dilute aqueous that contains a metal which can be easily precipitated.

1. Segregation and Characterization:
* Do not mix wastes. Especially do not mix hazardous wastes with nonhazardous wastes.
* Accurately label the waste bottles as to their exact content.
* Segregation and characterization allows waste to be redistributed for reuse if someone else in the University system can use the chemicals; if the waste cannot be redistributed, segregation simplifies chemical recycling, such as distillation or reclamation, and minimizes costs.
1. Expired and obsolete product determined to be hazardous waste:

Those products that have been determined to be hazardous waste will be placed in a satellite drum marked “hazardous waste.” Disposal of used floor dry materials, oil rags, absorbent pillow, etc., must be collected and managed by the maintenance department for disposal.

1. SMSU hazardous waste storage site:
* ST 219.
1. If you are asked a question that you are unable to answer, let people know that you will be in touch with them after you do a bit of research. Make a point of getting the information back to the person/people asking the question. Also, make sure people know who to contact Dave Hemp, Safety Director: (507)537-6470 if they have any future questions.
2. Properly label waste containers: (**See attached Hazardous Waste Weekly Inspection Form (1).)**
* Label each bottle with the words “Hazardous Waste,” and the exact contents of the bottle (including percentages and water content). Do not use abbreviations or chemical formulas, as emergency responders may not recognize these.
* Add the start date and fill date.
* Add your name and phone number.
1. Keep waste in compatible containers and closed at all times:
* Containers and lids must be compatible with the waste chemicals stored in them.
* Keep waste containers closed at all times except when adding or removing waste.
* Caution: do not leave a solvent bottle, drum, or any bottle of waste open with a funnel in it for the sake of convenience! This is one of the most common citations from inspectors.
1. Pharmaceuticals:

Containers must be closed except when waste is being added. The designated coordinator in your area will keep containers controlled and double locked in the Health Services Department.

* Waste Pharmaceuticals: Hazardous waste pharmaceuticals will be sorted into three containers. Container number one will be marked: P-HW. Container number two will be marked D/U/MN/IHW. Container number three will be marked as nonhazardous medication (this would also include empty containers previously holding P-listed products).
* Health Services will refer to the Pharmaceutical Waste Reference Guide to know which container to use for waste pharmaceuticals. A Pharmaceutical Hazardous Waste Management Log will be kept with the HW containers, keeping a list of the contents added and their waste codes.
1. Segregate incompatible waste:
* Especially separate acids from bases, oxidizers away from organics, water away from any water sensitive compound, cyanides from acids, and organic acids from oxidizing acids (nitric, fuming sulfuric, perchloric).
1. Use secondary containment for liquid waste:
* Use containment trays or safety cabinets to store waste containers and boxes (high density polyethylene trays).
* Caution: Use compatible containers for your waste. For example, use glass jugs for organic solvents or polyethylene for strong caustic solutions! Make sure the containers and caps will not react with your waste!
1. Hazardous Material Spill Response Plan

The purpose of the Hazardous Material Spill Response Plan is to minimize the likelihood of hazardous materials from endangering SMSU employees and the surrounding environment. This plan outlines ways to reduce hazardous materials from being used and stored at SMSU and to be able to adequately control materials if they are spilled from their original container. The following outlines the waste management practices implemented at SMSU:

* Prevent the formation or production of pollutants at the source.
* Reuse or recycle any wastes that cannot be prevented.
* Provide treatment for any wastes that cannot be prevented or recycled.
* Ensure the safe release or disposal of any residuals that cannot be prevented, recycled or treated.
1. Initial and Annual Training Requirements
* Minnesota Rules 7045.0454, 7045.0558, and Governor’s Executive Order 91-17 require initial and annual hazardous waste training for all SMSU faculty, staff, and student employees who manage or generate hazardous waste. Initial training must be completed prior to the employee working with chemicals. Graduate student teaching assistants, research assistants, and undergraduate employees are considered SMSU employees.
* Contractors and subcontractors hired by SMSU must comply with all federal, state, and local regulations and laws. If contractors or subcontractors work with hazardous materials, they should provide documentation to SMSU officials, demonstrating that all of their employees working on SMSU property have received hazardous waste generator training.
* Students must be trained by their instructors on how to manage hazardous waste in their teaching laboratories or research areas. At this time, training documentation is not required for students.
1. Training and Awareness:

Train your employees when they are first hired and annually. Training should include:

* The concepts described above.
* Annual documentation of the training signed by both the employee and supervisor.
1. New Employee Training should include the following:
* Hazardous waste definitions.
* Who to call for hazardous waste information.
1. Preparing waste for collection:
* Hazardous waste evaluation – using the Waste Registry.
* Closure of containers.
* Labeling of hazardous waste storage containers.
* Storage of incompatible wastes – separate by tray, cabinet, room, etc.
* Completion of the waste packing forms.
* Contacting the U of MN Chemical Day Waste Program for waste collection.
1. Other compliance issues:
* Container inspections – weekly for non-satellite
* Secondary containment for free liquid wastes
* No hazardous waste allowed in trash or salvage dumpsters
* Who to call for approval to sewer nonhazardous chemicals
* Evaporation of chemical residues is not allowed
* Emergency chemical spill response procedures
* Management of problem wastes – unknowns, batteries, etc.
* Pollution prevention techniques
* Self auditing procedures

e. Training Documentation Requirements

f. Document initial and annual update training includes

* Copies of the signed initial and annual update hazardous waste generator training records should be kept in your department’s head office.
* Records must be kept for at least three years past the termination date of a SMSU employee’s employment.
* Alternative methods of documenting training are acceptable, e.g. electronic files, scanned files, microfiche, etc.
* Records must be made available upon request by Federal, State, or local hazardous waste inspection officials, or SMSU Safety Director.
1. Acceptance of non-SMSU generated waste.
2. SMSU will accept no hazardous waste generated outside of the scope of operations of SMSU. Determination of the origin of and responsibility for all hazardous waste will be made by the Safety Director.

**REVIEW:** February 2013