[redacted]

HAZARDOUS WASTE MANAGEMENT POLICY AND GUIDELINES FOR FACULTY AND STAFF

EMERGENCY NUMBERS

Fire/Spill/Other Emergency ..... Department of Campus Safety (Ext. 5566)

Security/Personal Safety .....Department of Campus Safety (Ext. 5566)

Medical .....Department of Health Services (Ext. 5550)

Physical Plant.....Department of Facilities Services (Ext. 5860)

IMPORTANT SAFETY CONSIDERATIONS

- Safety Data Sheets (SDS) must be readily available in department offices, on-line at https://www.skidmore.edu/purchasing/secure/chemwatch.php or SDS Centers throughout the campus.
- The fire extinguisher(s) nearest the Satellite Accumulation Area (SAA) should be located.
- Fire alarms nearest the SAA should be located.
- The telephone nearest the SAA should be identified.

(3)The *Hazardous Waste Contractor* is responsible for

Ensuring all handling, packaging, labeling, placarding, manifesting, and transportation are completed in compliance with EPA and DOT requirements.

Assisting Facilities Services in the completion of annual reporting requirements as required by federal, state, and local agencies.

STANDARD OPERATING PROCEDURES

Waste Identification and Characterization

The generator will use the SDS (SDS can be found at https://www.skidmore.edu/purchasing/secure/chemwatch.php reagent bottle or container, the Merck Index, and/or the Classification of Hazardous Waste information in this document (see **Appendix A**) to determine if a substance is a hazardous waste and to identify its classification.

Unwanted chemicals in their original containers should not automatically be considered chemical waste as they might be used by other workers. If it is determined after departmental consultation that the chemical is unwanted, the worker must follow the procedure for hazardous waste removal addressed in **Appendix C** of this document.

If an unknown chemical or mixture is discovered, a hazardous waste label must be attached

indicated. Safe attempts at characterization of the contents may be attempted (phase, pH, organic vs. inorganic, etc.), and the bottle should be placed in the nearest SAA,. A request for waste removal must be place, immediately

General Procedures

Proper personal protective equipment should be used when working with hazardous chemicals. SDS should be consulted in the selection of appropriate PPE.

No hazardous waste may be poured into sinks/storm drains or placed in the trash under any circumstances. Examples include, but are not limited to

1. ignitables (flammables; often volatile organic compounds)
2. carcinogens and/or mutagens
3. heavy metals such as arsenic, barium, cadmium, chromium, lead, mercury, nickel, silver, zinc, etc. and/or other toxic materials

All hazardous waste must be poured into bottles/containers that are of appropriate size, in good condition, are sturdy, leak-proof and compatible with the waste material contained (See **Appendix B)**.

Hazardous waste containers must have a *tight fitting, screw on cap* (no corks, plastic film, aluminum foil, funnels, etc.) and must be sealed at all times, except when additional waste is being added.

Nonhazardous waste should not be mixed or packaged with hazardous wastes (See **Appendix G)**.

All old or extraneous labels on waste containers must be removed or completely defaced, unless the waste placed in the container is *precisely* the same material as is indicated on the original label.

No container of hazardous waste may be left unlabeled at any time.

All hazardous waste containers must be identified with proper labeling (see **Appendix B)**. Labels must include:

1.
2. the accumulation start date
3. a list of all chemical components and their relative quantities
4. the primary hazard(s) presented by the waste
5. the site of waste collection

The percent by volume must be determined when the waste container is full, or if the bottle is not yet full, prior to pickup by Facilities Services.

The hazardous waste label must be *securely affixed* to the container. If tape is used, it should encompass the four sides of the label.

Incompatible wastes may never be stored/mixed together. The original label on the bottle/container, the Merck Index, the SDS and/or **Appendix E** should be consulted for information on incompatibilities.

Two or more hazardous waste containers having contents that are incompatible (See **Appendix E)** may never occupy the same secondary containment. They must be placed into separate secondary containment.

Halogenated solvents should not be combined for disposal with solvents with non-halogentaed solvents..

Hazardous waste containers must be segregated by hazard class (ignitable, corrosive, toxic, air or water reactive) and placed in *separate* secondary containment. No co-mingling of classes is permitted. See **Appendix A** for further information on waste classification.

Compatible wastes may be mixed/stored together provided the relative quantities are listed on the waste label.

All SAAs must be inspected weekly for compliance with EPA regulations, and the records must be kept for 3 years.

GUIDELINES/REQUIREMENTS FOR THE SATELLITE ACCUMULATION AREA (SAA)

All SAAs must be located *at or near* the site of generation of the waste, and are under the management of the person(s) generating the waste.

There must be at least one SAA in each room where hazardous waste is generated.

Each designated SAA must be identified by a sign with words identifying the area and indicating the hazard(s) associated with the area.

SAAs should be located in areas that are free from sources of heat.

Waste containers in the accumulation area must be compatible with the waste. (See **Appendix B**) Food, beverage and detergent containers are not permitted.

Secondary containment equal to a *minimum* of 110% of the capacity of a single waste container stored therein or 150% of the volume of the largest container if more than one is stored therein is *required*. All secondary containment must be sturdy, leak-proof, and unbreakable.

No hazardous waste containers may be stored on the floor or in a sink.

No more than one container of each *type*

Storage of Chemicals

APPENDIX A

Classification of Hazardous Waste

40 CFR 261.10

A chemical waste is considered to be a hazardous waste if it is specifically listed by the EPA as a hazardous waste and/or meets any of the four hazardous classifications below. If a chemical waste is not on the EPA list of hazardous wastes, and does not meet any of the hazardous waste characteristics, it is a nonhazardous waste.

Hazardous Waste Classification/Characteristics

Ignitable Waste (**40 CFR 261.21**) (EPA hazardous waste classification **D001**)

1. A waste is considered ignitable if it meets any of the following criteria.
2. liquids (other than an aqueous solution containing less than 24% alcohol by volume) that have a flash point of less than 60°C (140°F)
3. solids capable of causing fire at standard temperature (0 °C, 32 °F) and pressure (760 mm Hg, 29.92 in) through friction, absorption of moisture, or spontaneous chemical change(s) which cause(s) vigorous and persistent burning when ignited.
4. an ignitable compressed gas as defined in **49 CFR 173.300**
5. an oxidizer as defined in **49 CFR 173.151** or a chemical whose name contains one of the classes in Table 1.

Table 1: **Common Classes of Oxidizers**

Bromates	Chromates	Nitrates	Permanganates
Chlorates	Dichromates	Nitrites	Peroxides
Chlorites	Hypochlorites	Perchlorates	Persulfates

Corrosive Waste (**40 CFR 261.22**) (EPA hazardous waste classification **D002**)

A waste is considered corrosive if it is

1. an aqueous solution that has a pH less than or equal to 2 or greater than or equal to 12.5.
2. a liquid that corrodes steel at a rate greater than 0.25 inches/year

Table 2:

Cresylic	Calcium Hydroxide	Antimony Trichloride
Hydrochloric	Calcium Oxide	Bismuth Trichloride
Hydrofluoric	Potassium Carbonate	Bromine
Nitric	Potassium Hydroxide	Chlorine
Perchloric	Sodium Carbonate	Glutaraldehyde
Periodic	Sodium Hydroxide	Potassium Chromate

Anhydrous Metal Halides	$AlCl_3$, $TiCl_4$, $ZrCl_4$, $SnCl_4$
Phosphorous Pentoxide	
Calcium Carbide	
Organic Acid Halides/ Anhydrides of Low Molecular Weight	
Metal Carbonyls	$Ni(CO)_4$, $Fe(CO)_5$, $Co_2(CO)_8$
Metal Powders	Al, Co, Fe, Mg, Mn, Pd, Pt, Ti, Sn, Zn, Zr
Metal Alkyls and Aryls	RLi, RNa, R_3Al, R_2Zn
Nonmetal Hydrides	B_2H_6, and Other Boranes, PH_3 , AsH_3
Nonmetal Alkyls	R_3 B, R_3 P, R_3 As
Phosphorus (White)	

<u>Toxic Waste</u> (**40 CFR 261.24**) (EPA waste number **D004 through D0043**)

Table 6 summarizes the classification of some of the *most commonly encountered* types of hazardous waste.

Table 6: **Classifications Associated with Common Types of Hazardous Waste**

HAZARDOUS WASTE	ASSOCIATED HAZARD
Halogenated solvents (e.g. methylene chloride)	Toxic
Non-halogenated solvents (e.g. acetone, benzene, diethyl ether , dioxane, ethanol, ethyl acetate, heptane, hexane, lig reW*12oxaig reW*1	

APPENDIX D

Table 9: **Commonly Regulated Hazardous Substances**

VOLATILE ORGANICS			
Acetone	2-chloroethyl vinyl ether	c-1,3-dichlorpropene	Phenolic compounds
Acrolein	chloroform	t-1,3-dichloropropene	Styrene
Acrylonitrile	chloromethane	Ethylbenzene	1,1,2,2-tetrachloroethane
Benzene	Dibromochloromethane	Fluoranthene	Tetrachloroethene
Bromoform	Dichlorobromomethane	2-hexanone	Toluene
Bromomethane	1,1-dichloroethane	Hexachlorobutadiene	1,1,1-trichloroethane
Carbon tetrachloride	1,2-dichloroethane	Methyl ethyl ketone	1,1,2-trichloroethane
Chlorinated naphthalenes	1,1-dichloroethene	P0.05 62u5.83 518.75 11.5	

Pirenzepine Hcl Hydrate
Plasmin
Poly (3-Hydroxy Butyric Acid)
Poly Ethylene Oxide
Poly Propylene, Isotactic
Poly(Ethylene Glycol), Solid
Poly(Ethylene), Solid
Poly(Isobutylene), Solid
Poly(Isoprene), Solid
Poly(Methyl Methacrylate), Solid
Poly(Sodium 4-Styrene Sulfonate)
Poly(Vinyl Alcohol), Solid
Poly(Vinyl Formal), Solid
Poly(Vinyl Pyrrolidone), Solid
Poly-Beta-Hydroxybutyric Acid
Polyacrylic Acid, Solid
Polyanetholsulfonic Acid, Sodium Salt
Polybutadiene, Cis-, Solid
Polybutene
Polyethylene Glycol
Polyethylene Glycol 8000
Polyvinyl Acetate, Solid
Portland Cement
Potassium Acetate
Potassium Bicarbonate
Potassium Bisulfite
Potassium Bitartrate
Potassium Carbonate
Potassium Chloride
Potassium Citrate
Potassium Gibberellate
Potassium Gluconate
Potassium Hydrogen Sulfite
Potassium Hydrogen Tartrate
Potassium Iodide
Potassium Phosphate Dibasic Trihydrate
Potassium Phosphate Monobasic, Anhydrous
Potassium Phosphate, Dibasic, Anhydrous
Potassium Phosphate, Tribasic
Potassium Pyrophosphate, Tetra-
Potassium Sodium Tartrate
Potassium Sulfate
Potassium Tetraborate Tetrahydrate
Povidone
Procion Brilliant Red
Proteidase
Protoporphyrin Ix, Sodium Salt
Pth-Aspartic Acid
Pth-Glutamic Acid
Putrescine Dihydrohydrochloride
Pvp
Pyridoxal Phosphate
Pyrite
Quartz
Quebracho
Rennase
Rennin
Resacetophenone
Retinyl Acetate
Riboflavin
Riboflavin-5-Phosphate
Ribose
Ribose Nucleic Acid
Ribose, D-
Rongalite
Rosin, Powder
Saccharose
Salicylic Acid
Sand
Sandimmun
Sea Sand
Senna Gum
Serine, Dl-
Serine, L-
Shellac Gum
Silicic Acid
Silicic Acid Sodium Salt
Silicon Carbide
Silicon Dioxide
Silicon Dioxide, Amorphous
Silicone Rubber, Solid
Sminosalicylic Acid,5-
Soda Ash
Sodium 2-Ethylhexyl Sulfate
Sodium Acetate
Sodium Acetate Trihydrate
Sodium Ascorbate
Sodium Bicarbonate
Sodium Borate, Anhydrous
Sodium Carbonate
Sodium Carbonate Monohydrate
Sodium Carbonate, Decahydrate
Sodium Cellulose Phosphate
Sodium Chloride
Sodium Cholate
Sodium Citrate
Sodium Cloxaxillin
Sodium Glucuronate
Sodium Glutamate
Sodium Hyaluronate
Sodium Iodide
Sodium L-Aspartate
Sodium Lactate
Sodium Lignosulfonate
Sodium Metaphosphate
Sodium Monofluorophosphate
Sodium Nitrobenzene Sulfonate
Sodium Nucleinate
Sodium Oleate
Sodium Phosphate Dibasic Dodecahydrate
Sodium Phosphate Monobasic Monohydrate
Sodium Phosphate Tribasic Dodecahydrate
Sodium Phosphate, Dibasic
Sodium Phosphate, Dibasic, Anhydrous
Sodium Phosphate, Dibasic, Heptahydrate
Sodium Phosphate, Monobasic, Anhydrous
Sodium Polymetaphosphate
Sodium Polymethacrylate
Sodium Polystyrene Sulfonate
Sodium Potassium Phosphate
Sodium Potassium Tartrate
Sodium Pyrophosphate
Sodium Silicate
Sodium Sulfadiazine
Sodium Sulfate
Sodium Sulfate, Anhydrous
Sodium Tartrate
Sodium Tetraborate, Anhydrous
Sodium Tetraphosphate
Sodium Titanate
Sodium Trimetaphosphate
Sodium Tripolyphosphate
Sodium Tripolyphosphate
Sodium Tungstate
Sorbitol, D-
Sorbose, L-(-)-
Spectra-Sorb Uv-9
Starch, Electrophoresis
Starch, Soluble
Steapsin
Strontium Carbonate
Succinic Semialdehyde
Sucrose
Sulfadoxine
Sulfamylon
Suloctidil
Talc
Tantalum Carbide
Tartaric Acid, L(+)-
Terrasodium Pyrophosphate
Tetrahydroxybenzophenol(2,2,4,4)
Thiamine Hydrochloride
Thienyl-Dl-A-Alanine-Z
Threonine, D-
Threonine, Dl-
Threonine, L-
Thyodene
Titanium Dioxide
Tocopherol, Alpha-
Tocopheryl Acetate, Dl-Alpha-
Tolazoline Hcl
Tragacanth Powder
Tri(B-Chloroethyl) Pohosphate
Tricalcium Phosphate
Triethelene Glycol Diacetate
Trifluorothymine
Trigonelline
Triphosphopyridine Nucleotide, Sodium Salt
Tripropyleneglycolmethyl Ether
Trisodium Phosphate, Activator
Trypsin
Trypsin Inhibitor
Tyrosine, D-
Tyrosine, Dl-
Tyrosine, L-
Urease
Urecholine
Uricase
Uridine
Valine, L-
Vanillic Acid
Vanillin
Variton
Vinyl Resin
Vitamin B12
Vitamin B2
Vitamin E
Vitamin E
Vitamin K-5
Vp-16
Xanthine
Xylan
Yeast Extract
Zein
Zinc Phosphate
Zirconium Oxychloride

Are there any waste containers present that are outside of the SAA? **40 CFR 262.34(c)(1)**		
Are the waste containers compatible with the contents? **40 CFR 265.172, 40 CFR 262.34(c)(1)(ii)**		
If waste containers used originally contained another substance, have they been triple rinsed and is the rinsate treated as hazardous waste?		
If waste containers used originally contained another substance, are the original labels completely removed or totally defaced?		
Are the waste containers and screw caps in good condition, free from leaks, cracks, and corrosion? **40 CFR 265.171, 40 CFR 262.34 (d) (2)**		
Is there more than one unfilled bottle of any of the four categories of hazardous waste present in the SAA? If yes, please explain in the space below.		

Is the volume of waste at or near any point of generation, in one room, less than 55 gallons or less than 1 quart of extremely hazardous waste? **40 CFR 262.34 (c)(1)**

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(a)If no, has the generator marked the container with the date that the quantity

significantly contribute to an increase in serious irreversible, or incapacitating reversible illness or pose a substantial present or potential hazard to human health, safety or welfare or to the environment when improperly treated, stored, transported, used, disposed of or otherwise managed.

Hazardous Waste Contractor an outside agency/business that picks up hazardous waste, and transports it to the disposal site.

Hazardous Waste Label a label affixed to a hazardous waste container that identifies/classifies the waste, indicates the date when accumulation of waste began, and estimates the % composition of the waste by chemical.

Heavy Metals metals of high molecular weight that are frequently classified as toxic.

Ignitables flammables, often volatile organic compounds, that may be in the solid, liquid, or gas phase.

Incompatible wastes wastes that when co-mingled may produce heat, pressure, fire and/or explosion, violent reaction, toxic dusts/mists/fumes/gases or flammable fumes/gases.

space that a generator uses for accumulation prior to collection by Facilities Services (when bottles are full) or by the Hazardous Waste Contractor (when scheduled removal occurs). It may be a hood, cabinet, low shelf, or table.

Secondary containment unbreakable, sturdy containers in which hazardous waste bottles are placed prior to transfer to the Main Accumulation Area. The containers provide protection in the event that waste is spilled or bottles leak.

Toxicity--The potential of a substance to exert a harmful effect on humans or animals and a description of the effect and the conditions or concentration under which the effect takes place.

Toxcity Characteristic Leachate Procedure (TCLP) EPA procedure (effective 9/25/90) for characterizing wastes as hazardous or non-hazardous.

Trade name a name given to a chemical by a manufacturer; one chemical may have many different trade names.

Water-reactive a chemical that reacts with water to release a gas that is either flammable or presents a health hazard.