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MEMORANDUM NO. 2009-121

TO: School District Superintendents

FROM: Jim McBride, Ed.D. 

DATE: August 28, 2009

SUBJECT: Revised Edition of the Wyoming Hazardous Materials Guidelines

SAFETY PUBLICATION

Pursuant to W.S. 21-2-202 (a)(xxii), the Wyoming Department of Education was tasked with writing the Wyoming Hazardous Material Guidelines.

This easy-to-read third edition summary of chemical safety best practices is enclosed. It can also be accessed at <http://www.k12.wy.us>. Please ensure your chemistry instructors and all other applicable staff has a copy.

If you have any questions, please call the Facilities and School Safety Consultant, Bruce Hayes, at 777-6198 or email him at bhayes1@educ.state.wy.us.

JM:BH

Enclosure

School Facilities Hazardous Materials Guidelines

**From the
Wyoming Department of Education
and the
Department of Environmental Quality**



August 28, 2009

Third Edition

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INTRODUCTION

Pursuant to W.S. 21-2-202 (a)(xxii), the Wyoming Department of Education (WDE) was commissioned to assemble a set of guidelines for the proper and safe storage and disposal of toxic chemicals and other hazardous substances in conjunction with the Department of Environmental Quality (DEQ).

These guidelines also serve to reinforce W.S. 21-3-101 (a)(xix), which requires the board of trustees in each district to, “develop policies...including emergency policies, to minimize risk to students and employees, school property and the environment.”

In addition, the School Accreditation Rules, Chapter 6, Section 17 (a) (v), state that districts will have policies and procedures in place to ensure that potential crisis situations are addressed at both the district and building levels. Hazardous chemicals and materials serve as potential crises.

In this document, the term “chemicals” is also used to cover over-the-counter substances such as lubricants, Isopropyl Alcohol, etc. The term “corrosives” can refer to either acids or bases.

It is required that every science/shop teacher and lab assistant be knowledgeable with the chemical safety and safety manual sections at the web site www.uwyo.edu/ehs/.

The WDE strongly encourages districts to coordinate preparedness activities with local emergency planning committees.

Section I. Purchasing Procedures

- A. Hazardous laboratory chemicals should be acquired in the smallest units reasonably possible. This will:
1. Provide for a minimal amount of potentially dangerous material to be stored in the school.
 2. Be less expensive in the long run because there are no disposal costs and no changes in physical characteristics due to materials exceeding their shelf life.
- B. All shipments shall have Material Safety Data Sheets (MSDS) with each new chemical. Do not accept the shipment without an MSDS for each chemical. For older chemicals, an MSDS may be acquired from the manufacturer, supplier, or applicable web site. It is important that emergency services in your area have copies of the MSDS that are used in your school's curriculum. All MSDS on file must be no older than five years.

Section II. On-Site Chemical Management

- A. A chemical is considered hazardous anytime it carries the label of poisonous, dangerous, caution, flammable, or a label that carries a similar message. A school with laboratory chemicals is expected to utilize the MSDS as a part of an overall chemical management plan. (Computerized files alone are insufficient because these would be unavailable if power or computer access was down in an emergency.) Per OSHA, these sheets should list:
1. Chemical names.
 2. Physical and chemical characteristics.
 3. Known acute or chronic health effects.
 4. Exposure limits.
 5. Whether the chemical is a carcinogen.
 6. Precautionary measures.
 7. Emergency and first aid procedures.
 8. Organizations that prepared the MSDS.
 9. The manufacturer's emergency telephone number.
- B. The districts shall not use chemicals that have exceeded the manufacturer's recommended shelf life.

- C. Districts are expected to operate a plan (manual or computer based) for purchasing, storing, effectively managing, and safely using/disposing of hazardous chemicals *to prevent a buildup of unusable or excess chemicals*. There are many software packages available for chemical management.
- D. It is important to have an accurate chemical tracking system to make ordering, dispensing, using, and disposing of hazardous chemicals more fool-proof and to assist in essential removal efforts.
- E. For immediate chemical spill response, it is necessary to be prepared. Each school should have a chemical spill response plan. Response procedures could include, but not be limited to, the following:
1. Evacuation plan to immediately get the students out of danger.
 2. Contact person.
 3. Decision tree to determine incidental versus emergency spills (i.e. when to call for outside help).
 4. Emergency response numbers on nearby telephone.
 5. Location of spill equipment.
 6. Map of chemical storage area.
 7. List of who has been trained and authorized for chemical cleanup.
 8. Instructions for Mercury spills – contact the Department of Environmental Quality (DEQ) for recommendations concerning these procedures.
- F. Non-hazardous liquid wastes may be dried down – hazardous wastes may not.
- G. Chemical wastes awaiting proper disposal should be stored in a separate place and:
1. Not mixed in among virgin stock chemicals.
 2. Not in the classroom.
 3. Not under the hood.
- H. Containers of waste awaiting proper disposal should be:
1. In good condition and not leaking.
 2. Kept closed, except when adding or removing waste.
 3. Labeled to identify what they contain.

4. Labeled to identify that the content is a hazardous or non-hazardous waste.
 5. Stored only with compatible wastes.
 6. Stored inside and protected from freezing.
 7. Coated in plastic, if made of glass.
 8. Limited to $\frac{3}{4}$ full to allow for expansion.
- I. Avoid mixing hazardous and non-hazardous wastes. The mixture automatically becomes a hazardous waste.
- J. For the safety of first responders, the front office should always have a current copy of the MSDS. Also, chemistry teachers are advised to let the front office know when they are doing experiments with flammable or reactive chemicals.

Section III. Chemical Storage

- A. The chemical storage area in a school should be separate and secured from other areas and should be off limits to students and shall comply with 2006 IFC, Chapter 27 Hazardous Materials – General Provisions, and the 2006 IBC (or latest IBC) where applicable.
- B. Shelving sections should be secure and equipped to prevent items from rolling off the shelves.
- C. Cabinets shall comply with provisions of the 2006 IFC and be listed and approved for their intended use.
- D. Other basic storage rules:
1. All cabinets, containers, or shelving shall be labeled to identify hazardous materials utilizing the National Fire Protection Association (NFPA) 704 marking system.
http://en.wikipedia.org/wiki/NFPA_704.
 2. Acids and flammable materials should each have their own special storage cabinet.
 3. Oxidizers should be stored away from flammables.
 4. Each storage area shall be equipped with smoke detectors.
 5. An approved eye wash station and fire blanket shall be located within 25 feet of the hazardous materials storage area.
 6. Spill control materials (neutralizing agents, dry sand, and Solusorb or equivalent) shall be readily available.
 7. Storage areas shall be free from possible ignition sources.

8. Emergency telephone numbers shall be posted in the chemical storage area, including the "Poison Control Network" number (1-800-222-1222) and a nearby/regional first responder number. A telephone and emergency first-aid supplies should also be located close by.
11. Peroxide-forming chemicals should be stored in an airtight container in a cool, dark, dry place and be properly disposed of 12 months after opening.
12. Chemicals should be divided into their chemically compatible families and then stored alphabetically within that compatible family.

Section IV. Chemical Inventory Procedures

- A. Prior to the inventory:
 1. Have a qualified chemical expert present during all planning and operational aspects of the inventory. Never perform a chemical inventory alone.
 2. Never involve students in the inventory. Conduct the inventory at a time when the fewest students are in the building.
 3. Advise emergency personnel (fire department and police department) prior to performing a chemical inventory. It is even an option to include them in the inventory.
 4. Use appropriate personal protective equipment and map out an escape route.
 5. Consult the UW safety manuals or websites. Have a sound understanding of the procedure before starting.

- B. Performing a chemical inventory:
 1. Avoid touching or moving containers that may contain shock sensitive chemicals. Old chemicals may have grown unstable. There are many chemicals that lose stability with age and become explosive if suddenly moved or jarred. If questions exist about the shock sensitivity of a particular material, consult with a chemical expert or call the fire department or the DEQ for help.
 2. Confirm the presence of an MSDS for each chemical.
 3. A staff person should record for each chemical:
 - a. Date of purchase and recommended shelf life.
 - b. Date of last inventory inspection.

- c. Quantity on hand at the time of the last inventory inspection.
 - d. Current quantity or amount of material (include units).
 - e. Size of container.
 - f. Type of container (metal, plastic, glass, gas cylinder, etc.).
 - g. Assigned storage space.
3. Note key characteristics where appropriate, i.e. percent of solid versus liquid, presence of crystals on lid or inside bottle, presence of and percent of emersion oil covering metal salts, presence of paraffin coating around lid, unexpected viscosity, unexpected content color, etc.
 4. Decide what must be disposed:
 - a. Determine the hazardous characteristics and storage requirements for each chemical.
 - b. Identify all chemicals that are unneeded or have an expired shelf life. A good general rule is all chemicals not used within a three-year period should be removed from storage and disposed of using proper removal procedures.
 - c. Identify all chemicals that are unstable, shock sensitive, explosive, highly toxic, or carcinogenic.
 - d. Utilize state, district, or community resources as available to properly remove the chemicals from the school campus. If necessary, contact the DEQ for waste storage and disposal requirements.
 5. If hazardous chemicals are shown to be missing:
 - a. Double check your results.
 - b. If possible, check with previous records to establish the time frame the chemicals left the storage area.
 - c. Contact your school principal and district superintendent.
 - d. Contact your local police.

Section V. Hazardous Material Disposal Options

- A. The district may remove hazardous material through district written contracts with a licensed provider with either no state aid, or with state aid when it is available.

- B. Some communities provide one-day collection events where “hard to dispose of” materials can be taken on an infrequent basis. Contact your local city government for information. This will not necessarily be available in all communities.
- C. At this time, there are four permanent hazardous waste collection facilities in the state. They are:
1. City of Casper 235-8246
 2. City of Cheyenne 637-6440
 3. City of Jackson 733-7678
 4. City of Gillette 682-6000
- Rules regarding what hazardous materials are received vary from site to site and are subject to change without notice.
- D. Federal grants are sometimes available which are aimed at funding the cleanup of toxic waste.
- E. In urgent cases, the Regulated Materials Management Center (RMMC) at the University of Wyoming can, with prior approval, help remove small amounts of toxic chemicals from a school.
- F. Contact the manufacturer listed on the MSDS for disposal procedures.

Section VI. Accident Prevention

- A. All districts are expected to:
1. Ensure that applicable teachers, instructors and aids are trained in lab safety procedures.
 2. Ensure that students are trained in lab safety and ensure that lab participants know that they are responsible for their own actions and for following all applicable safety procedures.
 3. Use as little flammable or ignitable liquid as possible in a lab, and only when absolutely necessary.
Note: If a flammable or ignitable liquid must be used, make absolutely certain that there is qualified supervision present and that there is an adequate airflow to exhaust combustible fumes to ensure they do not collect in the experiment area. Verify that applicable hoods, fans or other air moving means are available and in good working order.

- B. Alternative materials can often be substituted in place of chemicals while teaching the same principle.
- C. Videos are usually available via the web or textbooks. They can also be produced depicting a given experiment. This would require the experiment be conducted only once.
- D. A less hazardous chemical can sometimes be substituted for a more dangerous one.
- E. In certain situations involving highly flammable fluids or extraordinarily corrosive chemicals, a detailed walk-through may be conducted in place of direct student involvement.
- F. Micro-scale techniques can often be utilized.
- G. A "restricted use" policy can be imposed regarding select chemicals.
- H. The chemicals proven most dangerous can be removed from the school entirely.

Section VII. Non-hazardous Disposal

- A. For questions regarding materials that may be safely disposed through standard means, contact your nearest waste-water treatment plant or the DEQ's Solid and Hazardous Waste Division at 777-7752.
- B. Liquid chemicals in any form are prohibited from being disposed into state landfills.

Section VIII. Web References

On the following page, there are several web sites that promote specifics related to hazardous materials and lab safety:

<http://www.flinnsci.com/Sections/Chemistry/chemistry.asp>

<http://siri.org/msds>

<http://www.labsafety.org>

<http://hazard.com/msds>

<http://www.uwyo.edu/ehs/>

http://www.uwyo.edu/ehs/ChemicalSafety/Chemical_Safety.html

http://www.uwyo.edu/EHS/EHSTraining/EHS_Training.html

http://www.indiana.edu/~cheminfo/ca_csti.html

<http://ehs.okstate.edu/LINKS/labchem.htm>

<http://www.chemicalsafety.com/>

http://ehs.today.com/safety/chemical/ehs_imp_39314

http://articles.directorym.com/Poison_Prevention_Tips_Wyoming-r1092974

<http://www.fishersch.com/wps/portal/HOME>

http://www.epa.gov/opp00001/factsheets/health_fs.htm

<http://www.hometrainingtools.com/articles.asp?ai=1020&bhcd2=150702017>

[http://deq.state.wy.us/shwd/ICPage\(1\).asp](http://deq.state.wy.us/shwd/ICPage(1).asp)

APPENDIX

The hazard.com, uwyo.edu, and siri.org web sites can be used to locate an MSDS if one is not available from the manufacturer or supplier.

A chemical is not defined as a waste until the waste generator determines that it is (i.e. no longer has a use, outdated, etc.).

A school environment generating greater than 2.2 pounds per month of any P-listed chemical (see the Department of Environmental Quality's web site for a list of P-chemicals at [http://deq.state.wy.us/shd/I_CPage\(1\).asp](http://deq.state.wy.us/shd/I_CPage(1).asp)), is classified as a Large Quantity Hazardous Waste Generator (LQG), and is therefore subject to the LQG Wyoming hazardous waste generator requirements.

Outside of the MSDS, a quick chemical property identification and check on potential hazards can be made by accessing the *2008 Emergency Response Guidebook*.

The *2008 Emergency Response Guidebook* is divided into four sections.

Yellow Bordered Pages: Shows the index list of dangerous materials in numerical order.

Blue Bordered Pages: Index list of dangerous materials in alphabetical order.

Orange Bordered Pages: Safety recommendations.

Green Bordered Pages: Water reactive materials.

