Hazardous Waste Management

Russell F. Mankes, Ph.D.
Associate Professor, Chemical Hygiene Officer & Responsible Facility Official
Department of Environmental Health & Safety
Albany Medical Center / Albany Medical College
43 New Scotland Avenue, Albany, New York 12208-3478

ALBANY MEDICAL CENTER

Common Violations and Problems Found at Hospitals

- Failure to use properly trained and accredited asbestos personnel
- Failure to notify EPA of asbestos removal projects and to keep required documentation/record keeping.
- Failure to properly dispose of asbestos debris.
- Failure to close lids on parts washers when not in use.
- Failure to include spray paint booths and parts degreasers in air permit.

- **Improper disposal of chemotherapy drugs.**
- **Failure to perform or improper HW determinations.**
- **Improper management of expired pharmaceuticals, paints, etc.**
- **No or inadequate HW manifests.**
- **Lack of contingency plan.**
- **Lack of or inadequate training of employees in HW management.**
- **Failure to ensure that HW meets Land Disposal Restrictions.**
- **No Spill Prevention Control and Countermeasure plan.**

Common Violations and Problems Found at Hospitals

- Improper or lack of hazardous waste (HW) labeling.
- Improper consolidation of wastes from nearby facilities.
- No or infrequent weekly inspections of HW storage/satellite areas.
- Open containers of HW.
- Throwing HW down the drain.

- **Failure to upgrade or close underground storage tanks (USTs) by 12/22/98.**
- **No or inadequate secondary containment of storage tanks. Malfunctioning leak detection systems on USTs.**
- **Failure to notify residents of lead paint in building or lack of knowledge of any lead hazard.**
- **Failure to provide EPA's pamphlet, "Protect Your Family from Lead in Your Home."**
- **No permit for or noncompliance with wastewater discharges.**

EPA & NY DEC Inspections of Albany Medical Center

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Dr. Russell F. Maslen
Albany Medical Center
Department of Environmental Health and Safety
Han Memorial Building & The Bolton Hall
43 New Scotland Avenue, MC96
Albany, NY 12208-3478

Re: Albany Medical Center - EPA ID No. NYD020661169
Albany Medical Center Hospital - EPA ID No. NYD071128563

Dear Dr. Maslen:

This letter is in reference to the compliance evaluation inspection conducted of your institution on September 9, 2003 by Ronald Voelkel and Phillip Clappis of the U.S. Environmental Protection Agency (EPA), RCRA Compliance Branch.

At the time of the inspection, Albany Medical Center was found to be in full compliance with Section 3008 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984 42 U.S.C. § § 6901, 6928.

During the inspection, we noted that, in addition to implementing a state-of-the-art solvent recovery system, your institution uses micro scaling in its research laboratories, and each laboratory undergoes four annual in-house inspections to ensure continued compliance with environmental regulations. We commend your efforts in hazardous waste minimization and in ensuring compliance with RCRA regulations.

Thank you for your cooperation in EPA's efforts to ensure the safe handling and disposal of regulated hazardous waste. If you have any questions, please direct them to Ron Voelkel at (212) 637-3156.

Sincerely yours,

Joel Golombek, Chief
Hazardous Waste Compliance Section

cc: Tom Kilmer, Chief
Hazardous Waste Compliance Section (NYSDEC)

New York State Department of Environmental Conservation
Office of Environmental Quality, Region 4

August 30, 2004

Kenneth M. Urquhart, Jr.
Albany Medical College Environment Health and Safety
43 New Scotland Avenue A-87
Albany, NY 12208-3478

RE: Hazardous Waste Compliance
Inspection Date: 8/23/93
Location of Handler: Same as Above
EPA Identification Number:
NYD020662169

Dear Mr. Urquhart:

In order to determine compliance with the New York State Industrial Hazardous Waste Management law and the regulations pursuant thereto, the New York State Department of Environmental Conservation (the "Department") conducted an inspection of your facility on the above-referenced date.

As a result of that inspection, we believe that your facility is operating as a generator of hazardous waste.

No violations of the New York State Hazardous Waste Regulations were observed by the inspector on the inspection date referenced above. A copy of the Inspection Form is enclosed for your records.

Please be advised that the facility is under the continuing obligation to comply with all the applicable state and federal regulations regarding the management of hazardous waste. If your facility should be found in violation of the regulations in the future, you may be subject to escalated enforcement action, including monetary penalties.

Please note that this letter in no way addresses any liability you may have for any regulatory fees and hazardous waste special assessment fees.

Thank you for your cooperation.

Sincerely,

Clifton Van Gulder
Regional Solid & Hazardous Materials Engineer

Enclosure

cc: Clifton Van Gulder, Regional Solid & Hazardous Materials Engineer
Bruce Knapp, Reviewer, Central Office
Marcia Ellis, Regional Enforcement Coordinator

Joint Commission
on Accreditation of Healthcare Organizations

Approach

- JCAHO
- EoC – Environment of Care
- Hazardous Materials & Waste Management
- EC 3.10 Defines Hazardous Wastes as Nuclear (Radioactive), Chemical (RCRA) & Biological (RMW)……..UNITARY NBC SYSTEMS APPROACH!!!!!!!!!!!!

ALBANY MEDICAL CENTER

Mission Statement

"CURE Waste" Program

C·U·R·E
WASTE
at Albany Medical Center

To care for the community by developing, implementing and maintaining a comprehensive waste management program that cares for, respects, and protects the environment of the community

ALBANY MEDICAL CENTER

WASTE PREVENTION OPPORTUNITY

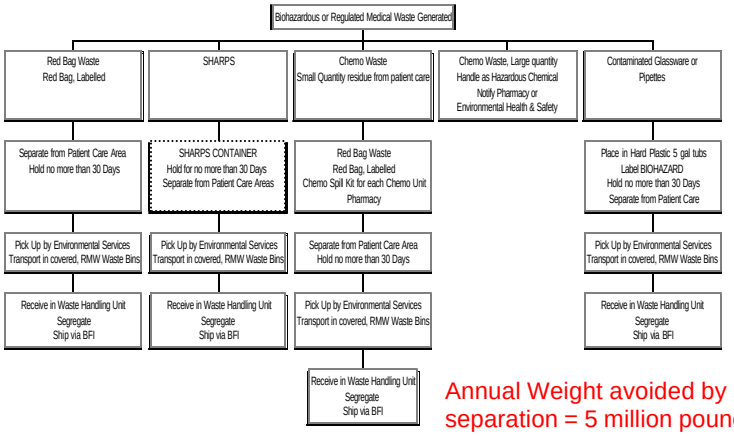
PATIENT CARE SOURCE SEPARATION PROGRAM

- Waste segregation
- Hazard minimization
- Promotes recycling
- Improves internal environment

- Reduces space demands
- Reduces elevator usage
- Improves quality
- Reduces costs
  - Labor
  - Packaging
  - Transportation
  - Disposal

ANATOMY OF A HAZARDOUS WASTE STREAM:

Regulated Medical Waste



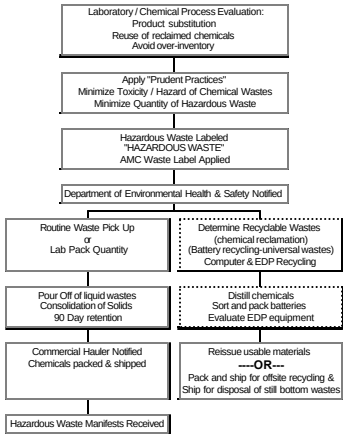
Annual Weight avoided by source separation = 5 million pounds; Costs avoided $1,000, 000.

Hazardous Materials &Waste Management

- Hazardous chemical wastes = low volumes but high risk and high cost!
- Energy recovery system incinerator shut down = offsite disposal of solvent wastes at high costs.
- Storage of hazardous materials = high risk from accidental release, fire or impermissible exposures.

ANATOMY OF A HAZARDOUS WASTE STREAM:

Chemical Waste



Chemical Recycling

The Albany Medical Center's Chemical Reclamation Facility is the largest such facility in the Eastern US. It consists of 3 research grade spinning band distillation units, a formalin recycler, a simple column distillation unit and a self contained dedicated xylene/alcohol recycler

Construction costs $75,000; Equipment costs $75,000.

At present we recycle ethyl alcohol, methyl alcohol, 2-propanol, xylene, formalin and paint thinner.

Since November of 1995, we have reclaimed 141 tons of solvents worth $1001,251 and avoiding $1.7 million in costs.

CFC Recovery

- Since 1994, 721 pounds of the refrigerants R22, R12, R502, R302, MP 39 and R500 are recovered from old equipment and reused.
- The Ozone depleting refrigerants R22 (Freon 22) and Freon 12 (R12) account for 99% of the total recovered CFC's

Battery Recycling

- Since 1994, AMC has generated over 100,000 pounds of used batteries representing an estimated hazardous waste disposal cost of $250,000.
- The batteries are from computers; telecommunications devices, such as radios, cell phones and pagers; flashlights; various diagnostic instruments, such as otoscopes, ophthalmoscopes, thermometers, blood pressure monitors and heart rate indicators; and scientific instruments. They range in size from small AA batteries to large lead-acid 12-volt units used in floor polishers and fork lifts.

Chemo – Pharmacy Waste

- Residual – RCRA
- Characteristic of hazardous waste.
- Visible drug remaining in container.
- Trace – RMW
- Characteristic of medical waste (blood, Sharp)
- RCRA “empty”
- APPLIES TO U LISTED WASTES ONLY!!!!!!!!!!!!

Pharmacy Waste

- U listed wastes:
- Residual – RCRA
- Characteristic of hazardous waste.
- Visible drug remaining in container.
- P listed ACUTELY TOXIC Wastes
- As2O3 – new anti neoplastic drug: P012
- Epinephrine – P042
- Nicotine – P075
- Warfarin – P001

RCRA Regulated antineoplastic cancer chemotherapeutic drugs

Drug	CAS#	RCRA ID number
Chlorambucil	305-03-3	U035
Chlornaphazine	494-03-1	U026
Cyclophosphamide	50-18-0	U058
Daunomycin	20830-81-3	U059
Melphalan (phenylalanine mustard)	148-82-3	U150
Mitomycin C	50-07-7	U010
Streptozotocin	18883-66-4	U206
Uracil Mustard	66-75-1	U237

In 1987, an EPA policy letter clarified that waste contaminated with trace residues of chemotherapy agents would be considered non-hazardous waste if it meets the " empty container" criteria. OSWER Directive 9441.1987(45) (policy directive from J. Sales, Chief, Regulation Development Section, EPA), U.S. Environmental Protection Agency, June 16, 1987; cited in W. L. Turnberg, loc. cit. " Empty containers" are containers from which chemotherapy agents have been removed and no more than 1 inch of residue or no more than 3% by weight of residue remains in the container. The EPA recommends that materials such as vials, syringes, gloves, etc. contaminated with these chemicals not be handled after use to minimize exposure.

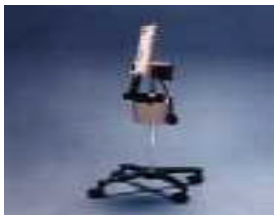
Computer EDP Recycling

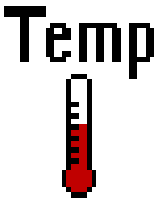
- In 1996, laboratory equipment, glassware and research supplies were added for adoption.
- In 1997, computers and EDP equipment were also added. Over $500,000 of monitors, printers, CPU, accessories, etc will be reissued to research labs, faculty offices and patient care areas, annually.
- To the present, 150,000 pounds of scrap computer, EDP, research, diagnostic and patient care equipment (VDT's, circuit boards, X-ray machines, ECG's, meters and balances) shipped to a state participating electronics recycler: Waste Management and Recycling Products in Schenectady, NY.

Mercury

EPA has reported that environmental mercury represents a significant health threat. They report that 10 percent of that mercury comes from medical waste incineration.

In response, some 170 health-care organizations have come together in a campaign to "make medicine mercury free," by phasing out as many sources of mercury from medical practices as possible. Their first targets: mercury-containing fever thermometers and sphygmomanometers (blood pressure "cuffs").





Mercury

Albany Medical Center has does not incinerate its waste. It is reduced to the smallest amount practicable (less than 5 pounds per patient per day), and sent to a commercial offsite corporation (Stericycle).

Mercury spills from broken equipment are responded to 24/7 by our HAZMAT Team, a HAZWOPR trained response unit. All mercury is recovered and disposed of as hazardous waste or completely recycled.

Batteries as noted earlier are collected and recycled.

Elemental and mercurial salts of economic value are sent for recycling.

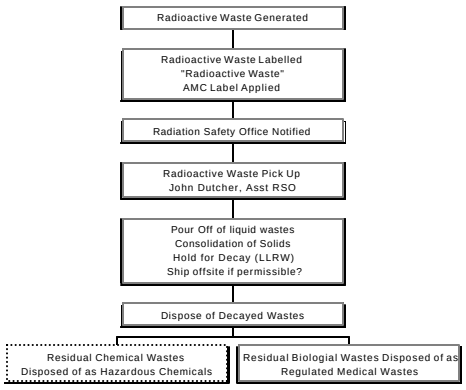
Fluorescent bulbs are collected and managed as Universal Wastes. All unbroken bulbs are sent for recycling.

Radioactive Waste

- Generally no viable offsite disposal options available.
- Waste avoidance.
- Waste minimization.
- Onsite storage.

ANATOMY OF A HAZARDOUS WASTE STREAM:

Radioactive Waste



WR^2

- Approved by NYS DOH as an alternative technology “reductive cremation”.
- Biological materials are reacted under heat and pressure with concentrated alkali (50% sodium hydroxide), reducing the proteins to a sterile amino acid soup.
- Aldehydes (cidex, formaldehyde), phenols, infectious wastes and biotoxins (anthrax, botulina) are reduced by this process.

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