NC Division of Waste Management
Pharmaceutical Waste Guidance Document

Please read the following document carefully.
If the waste in question does not fall into one of the following categories, your waste pharmaceuticals may be disposed of in the general solid waste stream.

Do not dispose of any drug or chemical in a commode or drain.

North Carolina Regulations (15A NCAC 13B .0103(c)) prohibit commercial facilities from disposing of any hazardous or liquid industrial waste in landfills.

Disposal Options

The recommended disposal options for hazardous pharmaceutical wastes are:
- Ask the vendor or manufacturer if they will take back the unused pharmaceuticals.
- Have a hazardous waste disposal company transport the wastes to a federally permitted hazardous waste incinerator or disposal facility.

The minimal requirements for disposal of hazardous pharmaceutical wastes are:
- Ask the vendor or manufacturer if they will take back the unused pharmaceuticals.
- Have the drugs incinerated in a regulated hazardous waste incinerator.
- Have a hazardous waste disposal company transport the waste to a hazardous waste landfill.

The disposal requirements for I.V. bags, syringes, gloves, gowns, tubing, etc. that may contain trace amounts of hazardous pharmaceuticals are:
- Have a medical waste transporter take the waste to a medical waste incinerator.

Other Sources of Information

Other sources that can provide information as to the hazardous nature of specific drugs are:
- Material safety and data sheet (MSDS).
- Product labeling approved by the US Food and Drug Administration (FDA).
- Special health warnings by drug manufacturers, and other professional groups.
- Reports and case studies published in medical and other healthcare professions journals
- Evidence-based recommendations from other facilities that meet the criteria defining hazardous drugs.
- The web sites of the Environmental Protection Agency (EPA), the National Institutes of Occupational Safety and Health (NIOSH), and the FDA

Category One – Endocrine Disruptors

This group includes reproductive hormones and consists of drugs such as **estradiol**, **testosterone** and **progesterone**. These drugs are common components of birth control pills. The group also includes **Lindane**, is used to treat lice, which is a known estrogen mimic. Additional drugs of this nature are listed below in the supplemental drug list on page 3.

Category Two – Hazardous Pharmaceutical Wastes

The drugs listed below are for a commercial chemical product in which it is the sole active ingredient or a commercially pure grade product or a manufacturing chemical intermediate having the same generic name listed.
These lists were adapted from articles entitled "Managing Pharmaceutical Waste" from the Jan. - Mar. 2006 issue of Medical Waste Management and from Infection Control Resource. Charlotte A. Smith authored both of the articles.

These are drugs listed as hazardous wastes by the US EPA.

P Listed

- **Arsenic Trioxide (PO12)**
- **Epinephrine (PO42)**
- **Nicotine (PO75)**
- **Nitroglycerin (PO81)**
- **Phentermine(CIV) (P046)**
- **Phystostigmine (P204)**
- **Phystostigmine salicylate (P188)**
- **Warfarin over 3% (P001)**

U Listed

- **Chlorol hydrate(CIV) (U034)**
- **Chlorambucil (U035)**
- **Cyclophosphamide(U058)**
- **Daunomycin (U059)**
- **Dichlorodifluoromethane (U075)**
- **Diethylstilbestrol (U089)**
- **Hexachlorophene (U132)**
- **Lindane (U129)**
- **Melphalan (U150)**
- **Mercury (U151)**
- **Mitomycin C (U010)**
- **Paraldehyde (CIV) (U182)**
- **Phenol (U188)**
- **Reserpine (U200)**
- **Resorcinol (U201)**
- **Saccharin (U202)**
- **Selenium sulfide (U205)**
- **Streptozotocin(U206)**
- **Trichlroromonoflouromethane (U171)**
- **Uracil Mustard (U237)**
- **Warfarin <0.3% (U248)**

Here are other characteristics of waste pharmaceuticals that may require special handling and disposal.

Ignitability (D001)

- Any water-based formulation containing 24% or more of alcohol.
- Any non-aqueous colloid with a flashpoint of less than 140°F.
- Colloids containing 60-70% diethyl ether and 20-30% ethyl alcohol.
- Compounds or solutions containing silver nitrate or potassium permanganate.

Corrosivity (D002)

- Any solution with a pH less than or equal to 2 or greater than or equal to 12.5.

Toxicity

Any drug having as a constituent any of the compounds or elements listed below at or above the level listed.

Hazardous waste number	Element or Compound	Level (mg/L)
D004	Arsenic	5.0
D005	Barium	100.0
D006	Cadmium	1.0
D022	Chloroform	6.0
D007	Chromium	5.0
D024	m-Cresol	200.0
D008	Lead	5.0
D013	Lindane	0.4
D009	Mercury	0.2
D010	Selenium	1.0
D011	Silver	5.0

Supplemental Drug List

In addition, the drugs listed below may exhibit other forms of toxicity. These drugs may exhibit one or more forms of **carcinogenicity** (cancer causing), **teratogenicity** (toxic to the development of fetuses), **reproductive toxicity or organ toxicity at low doses**. This list was adapted from the National Institutes of Occupational Safety and Health.

Caution: Some drugs may have entered the marketplace since the list below was assembled. Therefore, the list may not be complete.

Aldesleukin ..... Antineoplastic agents

Alemtuzumab ……Antineoplastic agents
Alitretinoin ……Miscellaneous skin and mucous membrane agents (Retinoid)
Altretamine ……Antineoplastic agents
Amsacrine ……Antineoplastic agents
Anastrozole……Antineoplastic agents
Arsenic trioxide…… Antineoplastic agents
Asparaginase …… Antineoplastic agents
Azacitidine……Antineoplastic agents
Azathioprine ……Unclassified therapeutic agents (immunosuppressant)
Bacillus Calmette-Guerin…… Vaccines
Bexarotene…… Antineoplastic agents
Bicalutamide ……Antineoplastic agents
Bleomycin……Antineoplastic agents
Busulfan …… .Antineoplastic agents
Capecitabine …… .Antineoplastic agents
Carboplatin …… .Antineoplastic agents
Carmustine …… Antineoplastic agents
Cetrorelix acetate ……Unclassified therapeutic agents (GnRH antagonist)
Chlorambucil …… Antineoplastic agents
Chloramphenicol …… Antibiotics
Choriogonadotropin alfa …… Gonadotropins
Cidofovir…… Antivirals
Cisplatin …… Antineoplastic agents
Cladribine …… Antineoplastic agents
Colchicine …… Unclassified therapeutic agents (mitotic inhibitor)
Cyclophosphamide …… Antineoplastic agents
Cytarabine …… Antineoplastic agents
Cyclosporin …… Immunosuppressive agents
Dacarbazine …… Antineoplastic agents
Dactinomycin …… Antineoplastic agents
Daunorubicin HCl …… Antineoplastic agents
Denileukin…… Antineoplastic agents
Dienestrol ……Estrogens
Diethylstilbestrol…… (nonsteroidal synthetic estrogen)
Dinoprostone …… Oxytocics
Docetaxel ……Antineoplastic agents
Doxorubicin …… Antineoplastic agents
Dutasteride…… Unclassified therapeutic agents (5-alpha reductase inhibitor)
Epirubicin …… …. Antineoplastic agents
Ergonovine/methylergonovine …… Oxytocics
Estradiol ……Estrogens
Estramustine phosphate sodium…… Antineoplastic agents
Estrogen-progestin combinations…… Contraceptives
Estrogens, conjugated …… Estrogens
Estrogens, esterified …… Estrogens
Estrone…… Estrogens
Estropipate …… Estrogens
Etoposide …… Antineoplastic agents
Exemestane …… Antineoplastic agents
Finasteride …… Unclassified therapeutic Agents (5-alpha reductase inhibitor)
Floxuridine …… Antineoplastic agents
Fludarabine…… Antineoplastic agents

Fluorouracil …….. Antineoplastic agents
Fluoxymesterone …… Androgens
Flutamide …… Antineoplastic agents
Fulvestrant…… Antineoplastic agents
Ganciclovir …….. Antiviral
Ganirelix acetate ……..Unclassified therapeutic agents (GnRH antagonist)
Gemcitabine …….. Antineoplastic agents
Gemtuzumab ozogamicin …… Antineoplastic agents
Gonadotropin, chorionic …….. Gonadotropins
Goserelin …….. Antineoplastic agents
Hydroxyurea …… Antineoplastic agents
Ibritumomab tiuxetan ……..Antineoplastic agents
Idarubicin ……..Antineoplastic agents
Ifosfamide …… Antineoplastic agents
Imatinib mesylate …… Antineoplastic agents
Interferon alfa-2a …… Antineoplastic agents
Interferon alfa-2b …… Antineoplastic agents
Interferon alfa-n1 …….. Antineoplastic agents
Interferon alfa-n3 …….. Antineoplastic agents
Irinotecan HCl …….. Antineoplastic agents
Leflunomide …… Unclassified therapeutic agents (antineoplastic agent)
Letrozole …….. Antineoplastic agents
Leuprolide acetate …….. Antineoplastic agents
Lomustine …….. Antineoplastic agents
Mechlorethamine …….. Antineoplastic agents
Megestrol …… Antineoplastic agents
Melphalan …… Antineoplastic agents
Menotropins…….. Gonadotropins
Mercaptopurine …… Antineoplastic agents
Methotrexate…… Antineoplastic agents
Methyltestosterone …….. Androgens
Mifepristone …… Oxytocics
Mitomycin …… Antineoplastic agents
Mitotane …… Antineoplastic agents
Mitoxantrone HCl …… Antineoplastic agents
Mycophenolate mofetil ……..Immunosuppressive agents
Nafarelin ……Gonadotropins
Nilutamide …… Antineoplastic agents
Oxaliplatin…… Antineoplastic agents
Oxytocin…….. Oxytocics
Paclitaxel…… Antineoplastic agents
Pegaspargase …… Antineoplastic agents
Pentamidine isethionate …….. Miscellaneous anti-infectives
Pentostatin …….. Antineoplastic agents
Perphosphamide ……..Antineoplastic agent
Pipobroman…….. Antineoplastic agent
Piritrexim isethionate ……..Antineoplastic agent
Plicamycin……Antineoplastic agent
Podoflilox …….....Miscellaneous skin and mucous membrane agents (mitotic inhibitor)
Podophyllum resin……Miscellaneous skin and mucous membrane agents (mitotic inhibitor)
Prednimustine…… Antineoplastic agent
Procarbazine ……Antineoplastic agents

Progesterone …….. Progestins
Progestins …….. Contraceptives
Raloxifene ……. Estrogen agonists-antagonists
Raltitrexed……..……. Antineoplastic agent)
Ribavirin …….. Antiviral
Streptozocin …….. Antineoplastic agents
Tacrolimus ……... Unclassified therapeutic agents (immunosuppressant)
Tamoxifen ……. Antineoplastic agents
Temozolomide ……..…… Antineoplastic agents
Teniposide …… Antineoplastic agents
Testolactone ……..…….Antineoplastic agents
Testosterone ……..…… Androgens
Thalidomide ……..…… Unclassified therapeutic agents (immunomodulator)
Thioguanine …… Antineoplastic agents
Thiotepa ……Antineoplastic agents
Topotecan …….. Antineoplastic agents
Toremifene citrate ……..…….. Antineoplastic agents
Tositumomab……..……. Antineoplastic agent
Tretinoin……. Cell stimulants and proliferants (retinoid)
Trifluridine ……. antivirals
Trimetrexate glucuronate ……..…….. Miscellaneous anti-infectives (folate antagonist)
Triptorelin …….. Antineoplastic agents
Uracil……Antineoplastic agent)
Valganciclovir…… ……Antiviral
Valrubicin …… Antineoplastic agents
Vidarabine ……..…… Antivirals
Vinblastine sulfate …….. Antineoplastic agents
Vincristine sulfate ……..…….. Antineoplastic agents
Vindesine…….. Antineoplastic agent
Vinorelbine tartrate ……..…… Antineoplastic agents
Zidovudine …….. Antiretroviral agents

Note: Antineoplastic agents are chemotherapeutic agents.