REVIEW

Fertilizer storage: Granular fertilizer is stored in the barn at the Research and Field Studies Center on pallets. Ordering is done to facilitate using the majority of the stored materials in a growing season. Occasionally there may be carry over from one season to the next. During the growing season the fertilizer needed for an application is transported to the campus from the Research and Field Studies Center and then stored under Griggs Stadium or in the Grounds Large Equipment Storage building while the applications are occurring. Any excess is returned to the Research and Field Studies Center for storage after the application takes place. Spills or ripped bags are swept up and stored in barrels or buckets and used first during the next scheduled application. Liquid fertilizers are also stored at the Research and Field Studies Center barn, Griggs Stadium or Grounds Large Equipment Storage building in a similar manner.

Application: For the past 5 years fertilizer applications have been made to the general campus in the fall only. Athletic fields may have up to 5 applications of fertilizer each season to promote the growth necessary to maintain a good playing surface and to insure recovery of the heavily used grass. A soil test of the athletic fields is done each year to establish the application rates for each of the fields. Soil tests may be done in areas of concern on the remainder of the campus. Any soil tests taken are kept on file for 7-8 years. Records of applications are also kept on file.

When making any fertilizer applications the equipment is calibrated for proper application rates in order to minimize the potential for leaching of nitrogen and/or phosphorous into streams.

During an application of granular fertilizer any material that lands on hard surfaces is cleaned up so it doesn’t run directly into the storm water system. Drop spreaders and cyclone spreaders are used for this type of application. A 1-ton truck with tank, boom and wand or a Gator with a tank, boom and wand are used for liquid application and these are also calibrated before each use. Equipment is cleaned by triple rinsing the tanks and spraying the residual out onto a treated area.

Pesticide storage: Liquid pesticides are stored in the Robert W. Bridges Fleet Grounds Maintenance building in a locked pesticide storage cabinet. These materials are inventoried twice each year. All liquid pesticides remain on the campus at all times. Pesticides that are in a granular or powder form are stored at the Research and Field Studies Center in a locked pesticide storage room in the barn. Our small applicator equipment, such as back-pack sprayers, weed-wicks and small pump sprayers, are stored in the same storage room.

Pesticide application: All UMD Gardeners, the Landscape Gardener, and the Grounds Supervisor, are licensed pesticide applicators with the State of Minnesota, Department of Agriculture. The majority of applications of pesticide materials are done only when there is a verified problem with a specific insect or disease. Weed control on turf areas has been done with fall applications the past 5 years. Equipment is properly calibrated
before use. Those involved with the application of pesticides are given training regarding the safe use and handling of the materials being used.

MSDS sheets are available for all materials being used and all product labels are kept on the storage containers. Each time the equipment is loaded, the pesticide is checked out and when the project is complete, the material is checked back in and the amount used is recorded. The Pesticide Application Form is to be filled out with each application. The form is used to record: area, material used and amount, wind speed and direction, temperature, operator, equipment. This form is kept on file for 5 years according to Department of Agriculture regulations. Equipment is properly cleaned after use and containers are disposed of according to regulations.

Equipment used for pesticide applications include: Gators with a sprayer tank, wand and boom, Solo back-pack sprayers, weed-wicks, or a1-ton truck with sprayer tank, boom and wand.

**Recommendations for Fertilizer and Pesticide Handling and Application**

We need to address the area in which we mix and load liquid materials into sprayers. Having the equipment and materials all in one area would greatly reduce the possibility of a spill or mishandling of materials. Recommendations include:

- Determine specific campus grounds appearance standards.
- Create a written Integrated Pest Management plan. (BMP UMD 608)
- Provide a designated area for loading and cleaning of equipment.
- Provide one storage area for fertilizers and pesticides on the campus.
- Provide air gap loading facility or device for loading fertilizers and pesticide equipment.

Responsible Party: University of Minnesota Duluth Storm Water Steering Committee
Contact: UMD Facilities Management (218) 727-8262 3/10/2004