



Boston College Environmental Health and Safety

Waste Management Plan Boston College Photo Development Operations

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1.0 Purpose

This Waste Management Plan has been developed to establish proper handling procedures of waste fixer generated by the Boston College photo development operations. In order to comply with Massachusetts Water Resources Authority (MWRA) wastewater discharge requirements, Boston College has installed a silver recovery unit which is subject to Massachusetts Department of Environmental Protection (MADEP) hazardous waste recycling regulations. To ensure the proper operation of the silver recovery unit, the proper handling of waste fixer, and the university's compliance with our permit and regulatory obligations, all student and faculty users of the photography lab must read, understand and comply with all aspects of this Waste Management Plan.

2.0 Silver Recovery Unit Operation

The waste fixer generated by the film development process contains concentrations of silver greater than allowable limit for discharge into the Boston College sanitary sewer system. This limit, as mandated by MWRA, is 2 parts per million (ppm).

Boston College has installed an Earth Solutions FRI80 silver recovery unit to treat waste fixer prior to discharge into the sanitary sewer system. Users of the Boston College photo development operations must pour all waste fixer into the waste fixer accumulation drum, located adjacent to the silver recovery unit.

Using an electrolytic process, the silver contained in the waste fixer will attach to plating cells within the silver recovery unit. After treatment, the waste fixer will contain less than 2 ppm of silver. The effluent from the silver recovery unit is then discharged to the sanitary sewer system.

The control panel on the silver recovery unit will display the total amount of waste fixer treated and discharged, in gallons, as "Fixer Amount". When the Fixer Amount reaches 600 gallons, the Boston College Office of Environmental Health and Safety will have Earth Solutions replace the plating cells in the silver recovery unit. The old plating cells are taken by Earth Solutions and the silver is removed for recycling. Upon replacement of the plating cells, the Fixer Amount display on the control panel will be reset to zero gallons by Earth Solutions.

3.0 Regulatory Compliance

The Code of Massachusetts Regulations (CMR) contains regulations which Boston College must comply

with in the handling of waste fixer and the operation of a silver recovery unit. The primary regulations which are applicable to the Boston College photo development operations are 310 CMR 30.204 and 310 CMR 30.205.

The regulations set forth in 310 CMR 30.204 require that Boston College obtain a permit to operate a silver recovery unit. This permit is issued by MADEP Bureau of Waste Prevention. The Boston College Office Environmental Health and Safety has obtained a permit to operate the Fine Arts Department silver recovery unit. The Permit Number is NE-96-014, issued on February 29, 1996. The permit expires five years after its issue date.

The regulations set forth in 310 CMR 30.205 require that Boston College and the users of the photo development operations handle waste fixer and maintain all silver recovery units according to this Waste Management Plan. The requirements of 310 CMR 30.205 include personnel training, system inspection, record keeping, spill contingencies, storage and accumulation of waste fixer, and annual reporting. Boston College must also ensure compliance with 310 CMR 30.222 (Generator Standards) and 310 CMR 30.223 (Transport and Manifest Standards) for the waste fixer and all other hazardous waste generated.

3.1 Personnel Training

For Boston College to stay in compliance with regulations, all students and faculty who use the photo development operations must read, understand and comply with the Standard Operating Procedures contained in this Waste Management Plan. Attachment A of this Waste Management Plan contains the Standard Operating Procedures for the handling of waste fixer. This Waste Management Plan, along with the Standard Operating Procedures will be kept adjacent to the silver recovery unit.

3.2 System Inspections

The Office of Environmental Health and Safety will designate student(s) and/or faculty member(s) who will be responsible for performing weekly inspections of the silver recovery unit and logging the amount of waste fixer accumulated. Periodically, as deemed necessary by the equipment's performance or at the discretion of the Office of Environmental Health and Safety, the weekly inspections could include an effluent test of the silver recovery unit discharge to the sanitary sewer system. The effluent test will be performed by the inspector using a Hach RapidSilver Test kit. Results of the periodic effluent tests will be maintained in a "Periodic Effluent Test Log".

3.3 Record Keeping

A silver recovery log book will be kept adjacent to the silver recovery unit. This log book will contain all inspection sheets and log sheets used to track the maintenance of the silver recovery unit and the accumulation of waste fixer. Inspection and log sheets must be retained for a minimum of three years. A copy of this Waste Management Plan, including the Standard Operating Procedures, will also be kept in the log book for students and faculty to reference.

3.4 Spill Contingencies and Emergency Response

A spill kit will be kept adjacent to the silver recovery unit. The Standard Operating Procedures (Item No. 1) explains the basic response procedures which must be taken if waste fixer is spilled. A phone and a list of emergency phone numbers will be located nearby the silver recovery unit.

3.5 Storage and Accumulation of Waste Fixer

All waste fixer must be stored and accumulated in drums. Throughout the period of accumulation, each drum containing waste fixer must be clearly marked and labeled with the following:

"Regulated Recyclable Material";

"Waste Fixer";

The date upon which accumulation began (required only on drums that are not hooked up to the silver recovery unit).

3.6 Annual Reporting

Based on the record keeping and effluent testing, the Boston College Office of Environmental Health and Safety will prepare annual reports on a form prescribed by MADEP. Annual reports must be submitted to MADEP no later than March 1st for the preceding calendar year. A copy of the MADEP Annual Report

Form for the 1996 calendar year is contained in Attachment D. MADEP should be contacted each year to obtain a new version of the Annual Report Form.