APPENDIX I
PHS USE APPROVAL FORM INSTRUCTIONS

Most of the information required as follows can be obtained from the appropriate MSDS sheet for the chemical product to be utilized.

1. Substance Information

A. Enter name and CAS (Chemical Abstract Service) number of the PHS.
B. Carcinogen: if on IARC, OSHA or NTP list; Reproductive toxin: mutagens, teratogens, embryotoxins; High Acute Toxicity: oral LD50 ≤ 50 mg/kg, skin LD50 ≤ 200 mg, air LC50 ≤ 200 ppm or ≤ 2 mg/l.
C. Self-explanatory
D. MSDS must be available in hard copy.

2. Hazards

A. Flammable liquid: flashpoint ≤ 100° F; Flammable solid: liable to cause fire through friction, absorption of moisture, spontaneous chemical change, or which can be ignited readily and when ignited burns vigorously
B. Corrosive: Causes visible destruction of, or irreversible alterations in, living tissue by chemical action at the site of contact (pH equal to or less than 2.0, or equal to or greater than 12.5)
C. Reactive: May become unstable or contact with water produces flammable or toxic gas.
D. Unstable: substance will vigorously polymerize, decompose, condense, or will become self-reactive under conditions of shock, or high or elevated pressure or temperature. Also includes time-sensitive materials, particularly those that produce peroxides over time.
E. Temperature Sensitive: Must be kept within a certain temperature range to ensure stability.
F. Known Incompatibilities: List chemicals or materials that might cause instability or adverse conditions if mixed with the particularly hazardous substance(s).
G. Inhalation: inhalation of the substance may cause adverse health effects.
Skin exposure: substance is readily absorbed through skin, or can cause damage to skin upon contact.
H. Sensitizers: Likst any chemicals known to effect the immune system, causing a person to experience allergic reactions, up to and including anaphylactic shock, upon exposure to the chemical, after the initial sensitization.

3. Procedure

A. Briefly describe the part of the experimental procedure that involves the substance, with particular attention to how the chemical will be manipulated.
B. Vacuum systems include central vacuum systems and vacuum pumps within the lab.
C. Describe what will be done to ensure that the substance is not accidentally drawn into the vacuum system. Cold traps or filters are some examples of such measures.

4. Engineering Controls

A. A fume hood should be used for chemicals that may produce vapors, mists, or fumes, or if the procedure may cause generation of aerosols. The hood must have an average face velocity of between 90 and 120 feet per minute. This measurement is noted on the hood survey sticker or flow monitor. The hood number is noted on the top of the fume hood inspection sticker.
B. A glove box should be used if protection from atmospheric moisture or oxygen is needed or when a fume hood may not provide adequate protection from exposure to the substance; e.g., a protection factor of 10,000 or more is needed.
C. Highly toxic gases must be used and stored in a vented gas cabinet connected to a laboratory exhaust system. Gas feed lines operating above atmospheric pressure must use coaxial tubing.

5. Personal Protective Equipment (PPE)

A. Safety glasses protect from flying particles and minor chemical splashes, i.e. opening a centrifuge tube.

B. Chemical splash goggles should be worn when there is a possibility of a significant chemical splash. Most chemical manipulations, particularly where pressure is involved, warrant chemical splash goggles.
C. Face shield, worn with splash goggles, provides full-face protection when working with large volumes of chemicals, or as a secondary means of eye protection.
D. Gloves should be worn when working with any particularly hazardous substance. Since not all gloves offer significant protection from every chemical, it is important to choose the glove that offers the best resistance. See the MSDS, or glove manufacturer compatibility charts for more information.
E. Lab coats should be worn when working with hazardous substances likely to splash, or when there is the need to take additional precautions to protect skin and clothing (like the use pyrophoric and water reactive chemicals). The coat should not be worn outside the laboratory and should be laundered separately from other clothing.
F. Aprons offer chemical resistance/protection from splashes and can be used in conjunction with a lab coat.
G. Respirators offer protection from inhalation of substances when engineering controls are not sufficient or not available. However, the use of respirators requires inclusion in the College's Respiratory Protection Program (including medical surveillance), and as such, the use of respirators must be approved by the Director of EP&S.

6. Location/Designated Area

A. A and B. Building and room number where the substance will be used.
C. Describe where in this room the substance will be used. For example, in a hood, on a specific benchtop, in several areas of the laboratory, etc. This room or area must be posted with a Designated Area sign available through your department Chemical Hygiene Officer or the Science Stockroom Coordinator.
D. Describe where the substance will be stored. Be specific, e.g, on a shelf, in a refrigerator, in a hood, etc.
E. Self-explanatory. Double containment means that the container will be placed inside another container that is capable of holding the contents in the event of a leak and provides a protective outer covering in the event of contamination of the primary container.

7. Emergency Equipment

A. A and B. Self-explanatory.
C. Describe what, if any, special emergency equipment is staged and/or available in the event of an accident. For example, the use of a 2.5% calcium gluconate gel as a topical neutralizing agent for dermal exposures to hydrofluoric acid.

8. Waste Disposal

A. Some corrosive chemicals may be neutralized before disposal via the drain or the hazardous waste program.
B. Some materials, such as ethidium bromide, can be chemically deactivated before disposal via the drain or the hazardous waste program.
C. Self-explanatory.