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| College of Biological Science - Standard Operating Procedure |             |              |         |
| <b>Gel Documentation System</b>                              |             |              |         |
| Date:  | 29-Jan-2008 | Prepared by: | A Doane |
| Revision:  | New         | Supersedes:  | n/a     |

**Purpose:**

To provide instruction the proper use of the gel documentation system (Gel Doc).

**Application:**

Users of the Gel Doc within the College of Biological Science should be familiar with the procedures described below.

**Safety Precautions:**

- ⚠ All operators must receive training prior to using the equipment. Training may be delegated to a qualified individual, but it remains the responsibility of the supervisor to ensure their personnel are adequately trained.
- ⚠ Ethidium bromide is a known mutagen. Always wear a lab coat and gloves when handling ethidium bromide solutions and stained agarose gels.
- ⚠ Do not look into the UV light source without face or eye protection.

**Notes:**

- To move a gel from one room to another in the same wing it is recommended that the gel be placed in a secondary container (i.e. small tray) so it can be transported without need for gloves. It is also permissible to use the 'one-glove' technique described below:
  - o Remove the glove from your dominant hand. Use the ungloved hand to open all doors, and carry the gel in the gloved hand.
  - o Open the door to the exposure chamber with the ungloved hand. Place the gel into the exposure chamber using the gloved hand and a spatula.
  - o Use the ungloved hand to manipulate all controls on the Gel Doc system.
  - o Sign the log book with the ungloved hand.
  - o When the documentation process has finished, open the chamber door with the ungloved hand, and remove the gel with the gloved hand and a spatula.
  - o Using the gloved hand, use a tissue to wipe the glass surfaces of the Gel Doc.
  - o Use the gloved hand to carry the gel back to your laboratory, opening all doors with the ungloved hand.

**Procedure:**

- **Starting the program**
  - o Ensuring you are using an ungloved hand, click the mouse to activate the monitor. Open the Gel Doc software if it is not already open.
  - o On the menu bar, select 'File', cursor down to 'Acquire' and select 'Gel Doc'.
- **Setting up the gel**
  - o Open the chamber door with the ungloved hand and load the gel into the chamber with the gloved hand. Centre the gel, using the monitor to assist in visualization.
  - o Close door and switch on UV light.
  - o With an ungloved hand, adjust the focus, zoom, and aperture on the camera to obtain the optimal image.

- In the Gel Doc window, click 'Capture'. Select the hatched-box icon in this window and drag it to select the area of interest.
- On the menu bar, select 'Edit', and cursor down to 'Extract'. A new window will appear with the final picture. You may wish to adjust the image properties (brightness/contrast) at this point.
- **Printing**
  - On the menu bar, select 'File', cursor down to 'Video Print' and click to print.
  - If the roll has a pink stripe, after your image has printed, obtain a new roll from the stock room and install per the directions on the printer.
  - Close the windows containing the extracted and original images. Click 'Don't Save' in the pop-up dialog box.
- **Closing the program**
  - Turn off the UV light.
  - With a gloved hand, remove your gel from the chamber and wipe down the surfaces with a tissue or paper towel.
  - Close the door to the chamber with a clean hand.
  - Record your name and the number of photos taken in the log book.

### **Contingency Plans:**

- **Skin contact**
  - If ethidium bromide solution comes in contact with your skin, wash the area using thoroughly with water and soap.
- **Spills**
  - Cordon off the area of the spill. Ask for assistance from those nearby if necessary.
  - Ensure you are wearing a lab coat, closed toed shoes, gloves, and eye protection.
  - If the spill has occurred on benchkote<sup>®</sup>, remove the affected section and place in a leak-proof container or bag. Label the bag as Ethidium Bromide waste and submit a waste disposal requisition to EHS.
  - If the gel was dropped on a hard surface, absorb any liquid/gel with paper towels or absorbent pads.
  - Place used materials in a leak proof bag or container and label as Ethidium Bromide waste.
  - To decontaminate the area, it is recommended that a solution of sodium nitrite and hypophosphorus acid be used. Add 4.2 g sodium nitrite and 20mL of hypophosphorus acid to 300mL of water.
  - Use a UV-light to locate any remaining Ethidium Bromide.
  - Soak a paper towel with the decontamination solution and wash the affected area.
  - Use water and paper towel to clean the area again. Rinse the area a few times to be sure any residue has been cleaned up.
  - Place all used materials in the Ethidium Bromide waste and submit a chemical waste disposal requisition to EHS.

### **Applicable Policies & Regulations:**

- University of Guelph Safety Policy 851.07.01