Injury and Illness Prevention Program

Revised June 2006
Linda Schmidt, Facilities Manager/Safety Officer
# Table of Contents

## Section 1

<table>
<thead>
<tr>
<th></th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Introduction and Purpose</td>
<td>3</td>
</tr>
<tr>
<td>II</td>
<td>Responsibilities</td>
<td>3</td>
</tr>
<tr>
<td>III</td>
<td>Identifying Workplace Hazards</td>
<td>6</td>
</tr>
<tr>
<td>IV</td>
<td>Communicating Workplace Hazards</td>
<td>7</td>
</tr>
<tr>
<td>V</td>
<td>Correcting Workplace Hazards</td>
<td>8</td>
</tr>
<tr>
<td>VI</td>
<td>Investigating Injuries and Illnesses</td>
<td>9</td>
</tr>
<tr>
<td>VII</td>
<td>Employee Health and Safety Training</td>
<td>10</td>
</tr>
<tr>
<td>VIII</td>
<td>Ensuring Compliance</td>
<td>12</td>
</tr>
<tr>
<td>IX</td>
<td>Record Keeping</td>
<td>12</td>
</tr>
<tr>
<td>X</td>
<td>Campus Safety Resources</td>
<td>13</td>
</tr>
</tbody>
</table>

## Section 2

<table>
<thead>
<tr>
<th></th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Hazardous Materials Management Plan (HMMP)</td>
</tr>
<tr>
<td>II</td>
<td>General Laboratory &amp; Personal Safety</td>
</tr>
</tbody>
</table>

## Section 3

### Appendices

<table>
<thead>
<tr>
<th>I</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Blood-Borne Pathogens Exposure Control Plan</td>
</tr>
<tr>
<td>II</td>
<td>VDT Workstation Design Guidelines</td>
</tr>
<tr>
<td>III</td>
<td>IIPP Forms (1-7)</td>
</tr>
</tbody>
</table>
I. INTRODUCTION AND PURPOSE

It is the policy of the University of California, Berkeley to maintain a safe and healthful work environment for each employee (including student and contract employees), and to comply with all applicable occupational health and safety regulations. The UCB School Of Optometry Injury and Illness Prevention Program (IIPP) is intended to establish a framework for identifying and correcting workplace hazards within the department, while addressing legal requirements for a formal, written IIPP.

II. RESPONSIBILITIES

Dennis Levi, Dean
The UCBSO Dean has primary authority and responsibility to ensure departmental implementation of the IIPP and to ensure the health and safety of the department's faculty, staff and students. This is accomplished by communicating the Berkeley campus's emphasis on health and safety, analyzing work procedures for hazard identification and correction, ensuring regular workplace inspections, providing health and safety training, and encouraging prompt employee reporting of health and safety concerns without fear of reprisal.

Optometry Safety Committee
The UCBSO Facilities Manager acts as chair. The Committee has the responsibility to maintain and update this IIPP, to assess departmental compliance with applicable regulations and campus policies, to evaluate reports of unsafe conditions, and to coordinate any necessary corrective actions. The Safety Committee meets periodically and includes representatives from faculty, staff, and the student body. Each floor of Minor and Minor Addition is represented, as well as each area of research, instruction, clinical practice, and administration. Every employee has a designated representative on the committee. The Safety Committee membership rotates periodically. Currently, the department's Safety Committee consists of:

<table>
<thead>
<tr>
<th>Name</th>
<th>Office Location</th>
<th>Position</th>
<th>Phone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cathy Cheng</td>
<td>693 Minor</td>
<td>Gong Lab</td>
<td>2-2491</td>
</tr>
<tr>
<td>Gunilla Hagerstrom-Portnoy</td>
<td>419 Minor Addn</td>
<td>Professor</td>
<td>2-9966</td>
</tr>
<tr>
<td>Ken Huie</td>
<td>413 Minor Addn</td>
<td>Adams Lab</td>
<td>2-9803</td>
</tr>
<tr>
<td>Peter Illes</td>
<td>504 Minor</td>
<td>Banks/Schor Lab</td>
<td>2-7679</td>
</tr>
<tr>
<td>Sharon Joyce</td>
<td>397 Minor</td>
<td>Student Affairs</td>
<td>2-5937</td>
</tr>
<tr>
<td>Larry Jones</td>
<td>360 Minor Addn</td>
<td>Human Resources</td>
<td>2-8664</td>
</tr>
</tbody>
</table>
Unsafe conditions that cannot be immediately corrected by an employee or the employees supervisor should be reported to the Department Safety Coordinator or any Safety Committee member by filling out a "Report of Unsafe Condition or Hazard" form (IIPP Form 1).

Timely correction of workplace hazards will be tracked by the Safety Committee which will receive and review reports of unsafe conditions, workplace inspection reports, and injury reports. Specifically, the Safety Committee will:

- Review the results of periodic, scheduled workplace inspections to identify any needed safety procedures or programs and to track specific corrective actions
- Review supervisor investigations of accidents and injuries to ensure that all causes have been identified and corrected
- Where appropriate, submit suggestions to department management for the prevention of future incidents
- Review alleged hazardous conditions brought to the attention of any committee member, determine necessary corrective actions, and assign responsible parties and correction deadlines
- When determined necessary by the Committee, the Committee may conduct an investigation of accidents and/or alleged hazards to assist in establishing corrective actions
- Submit recommendations to assist department management in the evaluation of employee safety suggestions

The Safety Committee must prepare and make available to all department personnel written minutes of issues discussed at the meetings. The Committee meeting minutes must be documented on IIPP Form 2, “Safety Committee Meeting Documentation,” or a similar form. These minutes are posted on the bulletin board outside of 381 Minor and must be maintained on file for at least one year.
The Safety Committee can seek assistance in the remediation of a hazard from other departments, including the Office of Environment, Health & Safety (EH&S) for campus health and safety issues, University Health Services (UHS) for ergonomic and workers’ compensation issues, the University of California Police Department (UCPD) for personal security concerns, or the Office of Radiation Safety (ORS) for radiation and laser beam issues (see Section X).

Department Safety Officer/Coordinator
Linda Schmidt 381 Minor 510-643-2689PH 510-448-2963 lschmidt@berkeley.edu
is the Facilities Manager and Safety Officer for Minor Hall and Minor Addition.

The Safety Coordinator has responsibility to:

- Ensure that the Safety Committee is aware of all accidents which have occurred, and all hazards which have been observed since the last meeting

- Work with the Facilities Manager to address facility-related safety concerns (if applicable)

- Assist in the coordination of required health and safety training

- Serve as liaison with EH&S and other campus safety resources on issues the department cannot resolve

- Maintain copies of Safety Committee minutes and other safety-related records

The Safety Coordinator may seek assistance from other members of the department as necessary to meet these responsibilities.

Supervisors
Supervisors play a key role in the implementation of the IIPP (the term “supervisor” includes any employee who oversees the work of others). Supervisors may be Management Services Officers, Senior Research Associates, Department Chairs, PI’s/Faculty, Staff or others. They are responsible to:

- Communicate to their staff and students UC’s directive on health and safety

- Ensure periodic, documented inspection of workspaces under their authority

- Promptly correct identified hazards

- Model and enforce safe and healthful work practices

- Provide appropriate safety training and personal protective equipment
• Implement measures to eliminate or control workplace hazards

• Stop any employee work that poses an imminent hazard to either the employee or any other individual

• Encourage employees to report health and safety issues to the Safety Committee without fear of reprisal

All Employees
It is the responsibility of faculty and staff to comply with all applicable health and safety regulations, University policies, and established work practices. This includes but is not limited to:

• Observe health and safety-related signs, posters, warning signals and directions

• Review the building emergency plan and assembly area

• Learning about the potential hazards of assigned tasks and work areas

• Take part in appropriate health and safety training

• Follow all safe operating procedures and precautions

• Use proper personal protective equipment

• Warn coworkers about defective equipment and other hazards

• Report unsafe conditions immediately to a supervisor, and stopping work if an imminent hazard is presented

• Participate in workplace safety inspections

III. IDENTIFYING WORKPLACE HAZARDS

Regular, periodic workplace safety inspections must be conducted throughout the department. By law, the first of these inspections must take place when the department first adopts the IIPP. The inspections should be noted on IIPP Form 3 or other documentation, and copies of this documentation must be maintained by the department for at least one year. These regular inspections will be supplemented with additional inspections whenever new substances, processes, procedures, or equipment introduced into the workplace represent a new occupational safety and
health hazard or whenever supervisors are made aware of a new or previously unrecognized hazard.

Generally, supervisors are responsible for identification and correction of hazards that their staff and/or students face and should ensure that work areas they exercise control over are inspected at least annually. Supervisors should check for safe work practices with each visit to the workplace and should provide immediate verbal feedback where hazards are observed.

The "Report of Unsafe Condition" Form 1 should be filled out when a referral is made to the Safety Committee as a result of a condition discovered during an inspection for which the responsible supervisor could not determine an immediate remedy. The "Report of Unsafe Condition" form can also be obtained in room 381 Minor, filled out and turned in via the Unit Safety Officer, directly to the UCBSO Safety Coordinator, or via a suggestion box anonymously.

IV. COMMUNICATING WORKPLACE HAZARDS

Supervisors are responsible for communicating with all workers about safety and health issues in a form readily understandable by all workers. All department personnel are encouraged to communicate safety concerns to their supervisor without fear of reprisal.

The Safety Committee is another resource for communication regarding health and safety issues for department employees. Each employee has a representative on the committee that will inform him or her of hazard corrections and committee activities. Additionally, Safety Committee minutes and other safety-related items are posted at room 381 Minor and employee lounge room 392KL. Employees will also be informed about safety matters by e-mail, voice mail, and distribution of written memoranda. Occasionally, the Safety Committee may also sponsor seminars or speakers or coordinate other means to communicate with employees regarding health and safety matters.

Supervisors are responsible for ensuring that employees are supplied access to hazard information pertinent to their work assignments. Information concerning the health and safety hazards of tasks performed by department staff is available from a number of sources. These sources include, but are not limited to, Material Safety Data Sheets (MSDS), equipment operating manuals, the Department Safety Coordinator, EH&S, campus libraries, container labels and work area postings.

Material Safety Data Sheets
Material Safety Data Sheets (MSDS) provide information on the potential hazards of products or chemicals. Hard copies of MSDSs for the chemicals used in the department are available in your lab. If an MSDS is found to be missing, a new one can be obtained by faxing a written request to the manufacturer. A copy of this request should be kept until the MSDS arrives.

MSDSs are also available over the Internet from a variety of sources. Select “MSDS” on the EH&S home page http://www. ehs.berkeley.edu for resources. For further information, contact EH&S, or your department Safety Coordinator for a fact sheet explaining how to use an MSDS. Videos and training on how to read and understand the information presented on an MSDS are also available from EH&S.

Equipment Operating Manuals

All equipment is to be operated in accordance with the manufacturer’s instructions as specified in the equipment’s operating manual. Copies of operating manuals should be kept with each piece of equipment in the shop safety manual. For certain pieces of equipment EH&S requires persons not trained to operate that piece of equipment and unfamiliar with its potential hazards to read the operating manual and receive training before using the equipment. Documentation of training records are to be kept in the shop training manual as long as the person is using the equipment.

V. CORRECTING WORKPLACE HAZARDS

Hazards discovered either as a result of a scheduled periodic inspection or during normal operations must be corrected by the supervisor in control of the work area, or by cooperation between the department in control of the work area and the supervisor of the employees working in that area. Supervisors of affected employees are expected to correct unsafe conditions as quickly as possible after discovery of a hazard, based on the severity of the hazard.

Specific procedures that can be used to correct hazards include but are not limited to the following:

• Tag unsafe equipment “Do Not Use Until Repaired,” and provide a list of alternatives for employees to use until the item is repaired

• Stop unsafe work practices and provide retraining on proper procedures before work resumes

• Reinforce and explain the need for proper personal protective equipment and ensure its availability
• Barricade areas that have chemical spills or other hazards and report the hazardous conditions to a supervisor or Building Coordinator

Supervisors should use the "Hazard Correction Report" (IIPP Form 4) to document corrective actions, including projected and actual completion dates. If necessary, supervisors can seek assistance to develop appropriate corrective actions by submitting a "Report of Unsafe Condition" to the Safety Committee. If the Safety Committee requires assistance from other campus resources such as EHS, PPCS (Physical Plant Campus Service), or UCPD (University of California Police Department), these resources should be contacted immediately.

If an imminent hazard exists, work in the area should cease, and the appropriate supervisor must be contacted immediately. If the hazard cannot be immediately corrected without endangering employees or property, all personnel need to be removed from the area except those qualified and necessary to correct the condition. These qualified individuals will be equipped with necessary safeguards before addressing the situation.

VI. INVESTIGATING INJURIES AND ILLNESSES

Injury Reporting
Employees who are injured at work must report the injury immediately to their supervisor. Students who are not employees who are injured or involved in an accident should report the incident to their instructor. In either case, if immediate medical treatment beyond first aid is needed, call 911. The injured party will be taken to the appropriate hospital or medical center. If non-emergency medical treatment for work-related injuries or illnesses is needed, call the Tang Center’s Occupational Health Clinic (2-6891) or Urgent Care Clinic (2-3188).

The supervisor of the injured employee must work with the department safety coordinator and the personnel/payroll officer to ensure that the "Employer's Report of Occupational Injury or Illness" and a "Workers’ Compensation Claim Form" are completed properly and submitted to the Workers' Compensation Office (Tang Center, Suite 2100).

If the injured employee saw a physician, the supervisor should obtain a medical release form before allowing the employee to return to work. The health care provider may stipulate work tasks that must be avoided or work conditions that must be altered before the employee resumes his or her full duties.

Injury Investigation
The employee’s supervisor or student’s instructor is responsible for performing an investigation to determine and correct the cause(s) of an injury incident. Specific
procedures that can be used to investigate workplace accidents and hazardous substance exposures include:

- Interview injured personnel and witnesses
- Examine the injured employee’s workstation for causative factors
- Review established procedures to ensure they are adequate and were followed
- Review training records of affected employees
- Determine all contributing causes to the accident
- Take corrective actions to prevent the accident/exposure from reoccurring
- Record all findings and actions taken

The supervisor’s findings and corrective actions should be documented and presented to the Safety Committee using the "Occupational Accident, Injury or Illness Investigation Report" (IIPP Form 5). If the supervisor is unable to determine the cause(s) and appropriate corrective actions, other resources should be sought. Available resources include the department’s Safety Committee, EH&S, and other campus safety organizations (see Section X).

The Safety Committee will review each accident or injury report to ensure that the investigation was thorough and that all corrective actions are completed. Investigations and/or corrective actions that are found to be incomplete will be routed back to the supervisor for further follow-up, with specific recommendations noted by the committee. The Department Safety Coordinator will bring corrective actions that are not implemented in a reasonable period of time to the attention of the dean.

VII. EMPLOYEE HEALTH AND SAFETY TRAINING

Employee safety training is provided at no cost to the employee and is conducted during the employee’s normal working hours on University time. Safety training may be presented by a knowledgeable supervisor, other department personnel or by representatives from other relevant campus departments. Regardless of the instructor, all safety training must be documented using the “Safety Training Attendance Record” (IIPP Form 6) or an equivalent record that includes all the information required on IIPP Form 6. By law, this documentation must be retained by the department for at least one year.
Initial IIPP Training
When the IIPP is first implemented, all department personnel will be trained on the structure of the IIPP, including individual responsibilities under the program, and the availability of the written program. Training will also be provided on how to report unsafe conditions, how to access the Safety Committee, and where to obtain information on workplace safety and health issues.

Personnel hired after the initial training session will be oriented on this material as soon as possible by the Safety Coordinator or appropriate supervisor. These individual training sessions will be documented using IIPP Form 7, “New Employee Safety Training Record,” or the equivalent. This document must also be kept by the department for at least one year.

Training on Specific Hazards
Supervisors are required to be trained on the hazards to which the employees under their immediate control may be exposed. This training aids a supervisor in understanding and enforcing proper protective measures. All supervisors must ensure that the personnel they supervise receive appropriate training on the specific hazards of work they perform, and the proper precautions for protection against those hazards. Training is particularly important for new employees and whenever a new hazard is introduced into the workplace. Such hazards may include new equipment, hazardous materials, or procedures. Health and Safety training is also required when employees are given new job assignments on which they have not previously been trained and whenever a supervisor is made aware of a new or previously unrecognized hazard.

Specific topics which may be appropriate to department personnel include but are not limited to the following:

- Fire prevention techniques and fire extinguisher use
- How to obtain emergency medical assistance and first aid
- Disaster preparedness and response, including building evacuation procedures
- Health and safety for computer users
- Hazard communication, including training on Material Safety Data Sheets, chemical hazards and container labeling
- Proper housekeeping
- Chemical spill reporting procedures
Safety Videos

A list of workplace safety videos that are available for borrowing can be obtained by contacting EH&S. Videos are available on a wide range of topics, including hazard communication, chemical safety, and various physical hazards. You can read descriptions of the videos and order them on-line via the EH&S web site at http://www.ehs.berkeley.edu by clicking on “Videos” under the “Publications” heading. Videos should be used to supplement, not replace, face-to-face safety instruction. Trainees should have an opportunity to ask questions of a knowledgeable instructor.

VIII. ENSURING COMPLIANCE

All department personnel have the responsibility for complying with safe and healthful work practices including applicable regulations, campus policy, and departmental safety procedures. Overall performance in maintenance of a safe and healthful work environment should be recognized by the supervisor and noted in performance evaluations. Employees will not be discriminated against for work-related injuries, and injuries will not be included in performance evaluations, unless the injuries were a result of an unsafe act on the part of the employee.

Standard progressive disciplinary measures in accordance with the applicable personnel policy or labor contract will result when employees fail to comply with applicable regulations, campus policy, and/or departmental safety procedures. Faculty members will be disciplined for unsafe practices in accordance with the Faculty Code of Conduct. Students not employed by the University will be disciplined for unsafe practices in accordance with the Student Code of Conduct. All personnel will be given instruction and an opportunity to correct unsafe behavior. Repeated failure to comply or willful and intentional non-compliance may result in disciplinary measures up to and including termination.

IX. RECORD KEEPING

Documents related to the IIPP are maintained in room 381 Minor or on-line at the EH&S website http://www.ehs.berkeley.edu. By law, certain documents related to the IIPP must be kept by the department for at least one year.

These documents include:

- Records of scheduled and periodic workplace inspections, including the persons conducting the inspection, any identified unsafe conditions or work practices, and corrective actions (IIPP Form 3 or equivalent)
• Employee safety training records, including the names of all attendees and instructors, the training date, and material covered (IIPP Forms 6 and 7 or equivalent)

Other documents related to the IIPP that should be kept on file include:

• Reports of Unsafe Conditions or Hazards (IIPP Form 1)
• Safety Committee Meeting Documentation (IIPP Form 2)
• Hazard Correction Reports (IIPP Form 4)
• Accident, Injury or Illness Investigation Reports (IIPP Form 5)

X. CAMPUS SAFETY RESOURCES

A number of University programs and service organizations have been established to address injury and illness prevention and to maintain and promote a safe and healthful work environment for the campus community. Important numbers are listed below. Also use the Berkeley Home Page or Campus Directory for up-to-date telephone numbers.

Office of Emergency Preparedness
For information on disaster preparedness
642-9036  http://oep.berkeley.edu/

Office of Environment, Health & Safety
For information on various safety topics, including hazard evaluations and employee training, radiation, waste, etc.
642-3073  http://www.ehs.berkeley.edu

Office of Risk Management
For safety issues that may generate lawsuits against the University
642-5141  http://riskmanagement.berkeley.edu/

Office of the Academic Ombudsperson
Assistance for academic appointees in dealing with supervisory issues
642-4226

Office of the Ombudsperson for Staff
Assistance for staff employees in dealing with supervisory issues
642-7823  http://stfombuds.berkeley.edu/
**Office Of Human Resources**
For information on personnel policies and labor contracts
642-9046  http://hrweb.berkeley.edu/hrhome.htm

**Physical Plant - Campus Services**
For installation and repair of facility safety equipment
642-1032  http://physicalplant.berkeley.edu/home.asp

**School of Optometry: Vision Care Services**
For assistance with safety eyewear
642-2020  http://students.berkeley.edu/osl/osl.asp

**Student Life Advising Services**
Assistance for student employees
642-7224  http://students.berkeley.edu/osl/osl.asp

**The Chancellor’s Office**
For information on campus policies
642-2331  http://campuspol.chance.berkeley.edu/

**UC Police Department**
For information on personal security at the workplace
642-6760  http://police.berkeley.edu/

**University Health Services**
For assistance on various topics, including psychological counseling, medical evaluations and treatment, ergonomic issues, worksite wellness, and Workers’ Compensation programs
642-2000  http://www.uhs.berkeley.edu

**APPENDIX**

**Date:** September 29, 2005

**TO:** Maziar Harrififar, O.D., Chief, Refractive Surgery Center, School of Optometry
**FROM:** Philip Maynard, Toxic Gas Coordinator, UCB-EH&S
**RE:** Evaluation of 0.23% Fluorine Gas Use in Room A200 Minor Hall

Thank you for taking the time to explain your work with VISX premixed fluorine gas and assist me in performing a hazard evaluation as required by the campus Toxic Gas Program. Precaution is necessary because fluorine (F2) gas is a strong oxidizer, highly reactive and toxic. An uncontrolled leak of a full cylinder into the room could result in a concentration of 75 ppm of fluorine, which exceeds the concentration of 25 ppm that is considered immediately dangerous to life and health (IDLH).

The fluorine gas is used in an excimer laser, and the laser is used for LASIK/PRK medical procedures on human patients. Fortunately the VISX medical laser equipment has operation...
requirements and procedures for the safety of the patient, the operators and other building occupants. Your ordering and use of 63.5 cubic feet of 0.23% fluorine is approved based on the set-up and your agreement to the following conditions of use.

**CONDITION OF USE / TOXIC GAS PROGRAM REQUIREMENTS:**

1) The SpectraPure Toxic Gas Room Air Purifier must be fully operational whenever the fluorine gas is in room A200. The purifier equipment includes a cabinet with its own mechanically ventilated toxic gas air filter for the room. There are fluorine sensors in the room that will automatically alarm and turn on the air purifier when an elevated concentration is detected. This system (contains filters, fans and sensors) is maintained by Spectra Gases, and it must continue to receive regular maintenance as specified by the manufacturer.

2) Always store the full gas cylinders containing toxic gasses within the mechanically vented gas cabinet or outside. Storage of the pre-mix should not continue in room 396 Minor Hall, as a full cylinder release in this room would cause a concentration of 70 ppm F2 which is over the IDLH concentration. Empty cylinders (<20%) can be temporarily stored in room 396, until they are shipped back to supplier.

3) Properly store gas cylinders, the cylinders should be well secured inside the gas cabinet with chains or other noncombustible straps. For large cylinders we recommend securing with two noncombustible chains, in the upper and lower halves. When the safety cap is removed, the cylinder must be secured on the medical equipment and the toxic gas sensors (one on laser and two in room) must be functioning properly.

4) Recommend the fluorine gas cylinder be equipped with a restrictive flow orifice that will limit the rate of release of gas in the event of a leak. Contact the gas vendor about such an orifice when you place an order for pre-mix.

5) Continue to maintain the chemical inventory as well as the room door signs. To assist emergency responders, label the outside of the gas cabinet with the name of the gas and concentration stored inside (Fluorine, 0.23%).

6) Provide documented training to all persons who will work with or near the toxic gas. This training should include an emergency procedure in case a leak is detected or symptoms are observed. The procedure should consider safety of the patients and other occupants of the building. The procedure posted in the preparation room seems to cover this requirement.

7) Provide documented training for the changing of the gas cylinder. Changing the gas cylinder is the most hazardous operation because the cylinder is fully pressurized and in this case it is done with out ventilation control; because the change out is automated with computer prompted instructions it seems to be a safe procedure but added caution is necessary whenever toxic gases are changed out. Respiratory protection for changing out the cylinder, does not seem necessary but is an option that should be discussed with the Visx representative. EH&S can assist in selecting an appropriate respirator, and all UC employees wearing a respirator must be properly enrolled in the UCB respiratory protection program.

8) Use caution when transporting the gas cylinder. Check that the valve is not leaking and do not transport a leaking cylinder into a building. Recommend transporting gas during off-hours when the building is not crowded, and do not use public elevators.
9) Because fluorine (F2) is a toxic gas with level 4 Health Hazard, I recommend you read an MSDS on F2 prior to use. MSDSs and other chemical hazard information are available electronically at [http://www.ehs.berkeley.edu/whatwedo/healthsafety/msds.html](http://www.ehs.berkeley.edu/whatwedo/healthsafety/msds.html).

10) Fluorine has good warning properties with an odor threshold of 0.2ppm, approximately at the permissible exposure limit of 0.1 ppm set by OSHA, and well below the 25 ppm level which is considered to be immediately dangerous to life and health.
There is a gas sensor on the Visx laser equipment, and 2 sensors in the room that are set to alarm first at 1 ppm and again at 7 ppm.

11) Verify that the gas regulator in use is approved for reactive F2.

12) The toxic gas cylinder must be stored securely and the room or gas cabinet must be locked when not occupied by authorized persons. Should the cylinder be "missing," it should be reported to campus authorities.

13) The exhaust from the laser must be scrubbed of F2 and should be exhausted out of the building via mechanical ventilation. Presently there is no exhaust ventilation in the room, therefore it is very important that the exhaust filter/scrubber on the laser must be properly maintained on a schedule as recommended by the laser manufacturer. Mechanical exhaust ventilation for the laser, room and for the gas cabinet should be considered; for instance instead of the fluorine absorbing room purifier an emergency evacuation fan is an option from the manufacturer. Presently it is not clear where or how to exhaust the air in room A200; presently the room has no supply or exhaust ventilation, and the ventilation for the clinic space is recirculated in Minor Hall.

14) Should there ever be a gas leak in the room that necessitates an emergency evacuation, contact EH&S prior to reoccupancy. Exhaust ventilation would need to be created for the space and EH&S has colormetric indicator tubes that can confirm that it is safe to re-enter the room. The indicator tubes can be used to detect down to 0.5 ppm F2 however the 8-hour permissible exposure limit is 0.1 ppm.

Please call me (643-7699) if you have any questions about these conditions or the Campus Toxic Gas Program.

cc: Stephanie McGovern, Surgical Nurse, School of Optometry
    Dr. Edward Revelli, Assoc Dean of Clinical Affairs

Philip Maynard
University of California, Berkeley
Office of Environment, Health & Safety
University Hall, 3rd floor
Berkeley, CA 94720-1150

voice mail: 510-643-7699
email: pmaynard@berkeley.edu
fax: 510-643-7595
Visit UCB-EH&S Web Site at http://www.ehs.berkeley.edu
*******************************************