

**Raleigh/Wake City-County  
Bureau of Identification**

**Crime Laboratory Division  
HEALTH AND SAFETY MANUAL**



**Raleigh/Wake City-County Bureau of Identification  
Crime Laboratory Division Health and Safety Manual**

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## **CHAPTER 1 – SAFETY PHILOSOPHY**

1. Management shall establish the philosophy and principles that govern all decisions regarding safety. The following is the Raleigh/Wake City-County Bureau of Identification Crime Laboratory's safety philosophy.

1. Safety in the Crime Laboratory is of paramount importance.
2. Management and employees are responsible for preventing injuries.
3. Employees are the key to a safe and injury-free work environment.
4. Training employees to work safely is essential.
5. Working safely is a condition of employment.
6. Prevention of personal injuries is good business.
7. Management audits are essential.
8. Deficiencies must be corrected promptly.

2. All Crime Laboratory employees shall carefully read and be aware of the safety guidelines presented in this document.

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## **CHAPTER 2 – INTRODUCTION**

1. The Crime Laboratory consists of the following sections:

- Evidence Receiving
- Latent Print Unit
- Computer Forensics Unit
- Forensic Photography
- DWI Blood Chemistry
- Drug Chemistry

2. The Forensic Science Quality Manager is responsible for the overall safety program. No program can be effective without the support and participation of all the unit supervisors and employees. In an effort to have a viable safety program, a Health and Safety Officer is appointed. The Health and Safety Officer should submit an annual safety report to the Forensic Science Quality Manager concurrent with the Crime Laboratory annual internal audits.

3. This Health and Safety Manual provides a set of guidelines for laboratory personnel to use in implementing and maintaining its health and safety program. It must be understood that these guidelines are not all-inclusive, and additions may be necessary to tailor them to a specific procedure used in the various sections of the Crime Laboratory.

4. Each supervisor or Technical Leader should annually review and update safety procedures and establish safety guidelines that are unique to their units, where necessary. These unit-specific guidelines should be provided for incorporation into the Raleigh/Wake City-County Bureau of Identification Crime Laboratory Health and Safety Manual.

5. Laboratory employees have the responsibility to report all health and safety hazards and to ensure that all employees observe proper safety procedures. All laboratory personnel have the responsibility to comply with the safety program, to take the necessary precautions to protect themselves and others, and to immediately bring any potential safety concerns to the attention of their supervisor or Technical Leader.

6. An effective safety program should reduce accidents, injuries, and health problems. The benefits include a more pleasant work environment, healthier employees, fewer accidents and, in the long run, increased efficiency and professionalism in the Crime Laboratory.

7. The Raleigh/Wake City-County Bureau of Identification Crime Laboratory Health and Safety Manual will be maintained on the CCBI Shared Drive, to which all employees have access.

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## **8. Objectives**

8.1. These guidelines serve as a reference and a constant reminder of the need to work safely. Also included are instructions for supervisory personnel and Technical Leaders on how to carry out their responsibilities, perform safety inspections, and report accidents and medical emergencies that occur.

### **8.2. Safety Program Objectives:**

1. To promote and maintain the well-being of laboratory personnel by the prevention of occupational accidents, injuries, and illnesses.
2. To identify and eliminate hazards that endanger the health and safety of personnel.
3. To reduce workplace interruptions and delays brought about by accidents.
4. To develop safety conscious personnel through their proactive participation in the safety program.

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## **CHAPTER 3 – SAFETY RESPONSIBILITIES**

1. The Health and Safety Officer for the Raleigh/Wake City-County Bureau of Identification Crime Laboratory is responsible for evaluating Crime Laboratory occupational safety and health practices. These guidelines are in compliance with the Wake County health and safety program.

### **1.1. Duties and Responsibilities:**

1. The Health and Safety Officer is responsible for the safety inspections of the laboratory in accordance with the Laboratory Health and Safety Manual. Safety inspections of the laboratory shall be conducted by the Health and Safety Officer at least once per year concurrent with Crime Laboratory internal audits.
2. Records of the laboratory safety inspections are maintained by the Health and Safety Officer.
3. The Health and Safety Officer is responsible for organizing Health and Safety training session(s) for all Crime Laboratory personnel. All such training will be coordinated with the CCBI Training Coordinator.
4. Employee attendance and successful completion of these training sessions will be properly documented by the CCBI Training Coordinator.

### **2. Supervisor and Technical Leader Duties and Responsibilities:**

2.1. Maintaining a safe and accident-free workplace is a primary objective of all unit supervisors and/or Technical Leaders. They have the responsibility to ensure that employees are trained and are familiar with using safe practices and procedures, as well as safe use of instruments and equipment.

2.2. As a minimum guide, supervisors and/or Technical Leaders will ensure that each new employee is:

1. Familiar with emergency phone numbers, evacuation drills, warning alarms, etc.
2. Aware of the location of and the proper use of the fire extinguishers, first aid kits, safety showers, eye wash stations, and AEDs.
3. Aware of the location of and use of specialized equipment for handling spills of chemicals and/or biological material.
4. Aware of the location of all personal protective equipment.
5. Thoroughly familiar with the Crime Laboratory's Health and Safety Manual.

2.3. The requirements listed above shall be completed prior to or soon after a new employee begins working in the laboratory environment.

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2.4. Each supervisor and/or Technical Leader has the responsibility to continuously monitor the work habits of all individuals as well as the work area conditions to ensure that a safe work environment is maintained. A supervisor and/or Technical Leader is required to take immediate and corrective action in response to any unsafe act or condition.

**3. Chemical Hygiene Officer's Responsibilities:**

1. Maintenance of regulations and safety reference material to be made available for all employees to include Material Safety Data Sheets (MSDS)
2. Biohazardous and hazardous waste disposal
3. Chemical Hygiene Plan compliance

**4. Employee's Duties and Responsibilities:**

1. Accident prevention and awareness must be an ongoing priority for all employees.
2. Learn the safety and health hazards of the chemicals, techniques, and equipment used in the laboratory.
3. Read the Health and Safety Manual and adhere to the safety guidelines.
4. Be alert to unsafe conditions and report them to their immediate supervisor and Health and Safety Officer.
5. Report all accidents and medical emergencies immediately to their supervisor, the Health and Safety Officer, or the Deputy Director of the Crime Laboratory Division.
6. Become thoroughly acquainted with their unit's location and use of safety equipment, such as fire extinguishers, first aid kits, safety showers, eyewash stations, and AEDs.
7. Be aware of the location of and use of specialized equipment for handling spills of chemicals and/or biological material.
8. Participate in safety training.
9. Maintain all safety equipment and items in proper working condition.
10. Use common sense.
11. Periodically review health and safety guidelines and implement changes.

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## **CHAPTER 4 – SAFETY INSPECTIONS**

1. The Health and Safety Officer shall conduct safety inspections to ensure compliance with the safety and wellness guidelines. The safety inspections consist of visual inspections of each unit of the Crime Laboratory. Any hazards detected during a safety inspection or any violations noted should be reported to the supervisor in charge of that unit, the Deputy Director of the Crime Laboratory Division, and/or the Forensic Science Quality Manager.

2. The Health and Safety Officer and the Chemical Hygiene Officer have similar but distinct responsibilities. The Chemical Hygiene Officer is responsible for areas including chemicals, and the Health and Safety Officer is responsible for areas other than chemicals.

3. The Chemical Hygiene Officer is responsible for obtaining and maintaining records in the following areas:

1. Fume hoods
2. Biological safety cabinets
3. Regulations and safety reference material available for all employees to include Material Safety Data Sheets (MSDS)
4. Spill clean-up kits available and current
5. Biohazardous and hazardous waste disposal
6. Chemical Hygiene Plan compliance

4. The Health and Safety Officer will be responsible for obtaining and maintaining records in the following areas:

1. Fire extinguishers
2. Laboratory emergency evacuation compliance
3. Safety shower and eyewash stations
4. First aid kits
5. Medical emergency procedure compliance

5. Wake County General Services Administration is responsible for periodic maintenance inspection program records in the following areas:

1. Smoke detectors
2. Fire extinguishers
3. Emergency lighting
4. Alarm system
5. Electrical equipment
6. Air quality

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6. The Health and Safety Officer will obtain copies of the records maintained by the Wake County General Services Administration.

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## **CHAPTER 5 – BIOLOGICAL AND CHEMICAL CONTAMINATION**

1. Individuals working in forensic science laboratories handle samples that may contain substances that are toxic, carcinogenic, or otherwise hazardous to humans on a routine basis.

2. The hazards of biological and chemical samples will vary according to (1) the nature and concentration of the infecting agent, (2) the routes of exposure: i.e. absorption, direct inoculation, vectors, and ingestion, and (3) the susceptibility of the exposed employee. Each sample must be considered to be a potential hazard and handled appropriately to protect the employee or others in the immediate vicinity from contamination.

### **3. Common Routes of Contamination**

#### **3.1. Absorption**

3.1.1. Open cuts or scratches on the skin, particularly the hands, provide a point of entry for infectious agents. Penetration of intact skin is possible by some infecting agents and chemicals, while others may enter through the conjunctiva of the eye or other mucous membranes as a result of contact with contaminated hands.

3.1.2. Direct physical contact by handling wet or dry samples (since physiological stains should be regarded as potentially infectious), as well as the splashing of liquids, is a frequent means of contamination.

#### **3.2. Direct Inoculation**

3.2.1. Broken glassware, needles, syringes, forceps, staples on packaging materials, and other sharp objects provide a direct means of injection of infecting agents into the bloodstream.

#### **3.3. Vectors**

3.3.1. Ticks, fleas, body lice, and other ectoparasites are potential sources of contamination.

#### **3.4. Ingestion**

3.4.1. Smoking, eating, or drinking after handling evidence specimens and prior to hand washing may result in oral ingestion of infective agents or hazardous chemicals. Mouth pipetting, placing objects, such as pens and pencils, in one's mouth, or hand contact with mucous membranes may also result in contamination.

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### 3.5. Aerosols

3.5.1. Infectious agents may become airborne through a variety of laboratory procedures or accidents; e.g. spills, clean up of spills, broken containers, centrifuging, Pasteur pipette transfer and mixing, sample homogenizing, splashing liquids and flaking material (from dried stain), removing caps or stoppers from tubes, and mechanical handling of clothing and other materials. When involved with any of the above situations or while using aerosol or sprays, proper ventilation and/or breathing protection is imperative.



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## **CHAPTER 6 - OFFICE AND LABORATORY SAFETY**

1. Alertness for a person's own safety and that of his/her colleagues should be remembered at all times.
2. Eating in the following laboratory areas is prohibited:
  - Drug Laboratory
  - Blood Alcohol Laboratory
  - Blood Drug Laboratory
  - Footwear Examination Laboratory
  - Wet Laboratory
  - Dry Laboratory
  - Trace Laboratory
3. Laboratory coats or personal protective equipment should not be worn in designated eating areas.
4. Laboratory glassware is not to be used for the preparation or consumption of food or beverages. Glassware for food or beverages is not to be washed in the laboratory's sinks.
5. Chemicals and solvents may only be stored in designated area(s), or a designated refrigerator, and never with food.
6. All non-laboratory personnel shall adhere to security procedures.
7. Any equipment, supplies, or evidence stored above the cabinets shall provide 18 inches of clearance from the ceiling.
8. Keep routes to exits in all areas of the laboratory free of impediments or obstructions.
9. Keep aisles in all areas of the laboratory free of boxes, wastebaskets, chairs, evidence, and other obstacles.
10. Supervisors and/or Technical Leaders should ensure common work areas are cleaned and maintained free of unnecessary items.
11. All chemical or biological spills should be immediately neutralized and cleaned up. Properly dispose of chemicals and biohazardous waste.

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12. Use appropriate personal protection equipment. When in doubt, use the maximum protection available.
13. Always use a fume hood when potentially hazardous gases, chemicals, solvents, fumes, mists, smokes, aerosols, dust, etc., are involved in a mechanical or chemical procedure. Mouth pipetting is prohibited.
14. A label on an incoming container of a chemical or other substance should not be removed or defaced.
15. Ensure that reagent bottles and solvent and chemical containers have appropriate labels attached to them.
16. Do not use chipped or cracked glassware. Dispose of such damaged glassware in designated waste containers.
17. Make sure all cylinders are upright and are securely fastened using the wall, bench top, or floor holders. Cylinders must be properly capped before transporting and secured in a cylinder truck.
18. Care must be exercised in the stacking and washing of glassware to avoid unnecessary breakage and hazards.
19. Glass items to be disposed of will be placed in the glass disposal containers located throughout the laboratory sections. Glass items will not be discarded in normal trash containers. Sharp metal objects such as scalpel blades will be disposed of in a safe manner.
20. Most of all, use common sense, be aware of complacency, and think safety at all times. The above precautions are not all inclusive. Others should be discussed with your supervisor and/or Technical Leader and the Health and Safety Officer or Chemical Hygiene Officer.

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## **CHAPTER 7 – BLOOD-BORNE PATHOGEN PROGRAM**

### **1. Purpose**

1.1. It is the Raleigh/Wake City-County Bureau of Identification's purpose to provide a comprehensive exposure control system that maximizes protection against communicable diseases for all employees and for the public it serves.

1.2. While each employee is ultimately responsible for his/her own health, the Department recognizes a responsibility to provide all employees with the best available protection from the threat of occupational acquired communicable diseases.

### **2. Policy**

CCBI shall maintain a blood-borne pathogen program consistent with all Federal and State regulations, OSHA regulations and Wake County policy.

### **3. Definitions**

Blood-borne Pathogens: Pathogenic microorganisms present in human blood and can cause disease in humans. These pathogens include, but are not limited to, Hepatitis B Virus (HBV) and Human Immune Deficiency Virus (HIV).

Other Potential Infectious Materials: Includes the following human body fluids: semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva, and any body fluid that is visibly contaminated with blood.

Occupational Exposure: Actual or potential parenteral, skin, eye, or mucus membrane contact with blood or other potentially infectious material that may result from the performance of an employee's duties.

Standard Blood and Body Fluid Precautions: An approach to infectious disease control, according to the concept of standard precautions, where all human blood; blood components including serum; other body fluids containing visible blood; semen; vaginal secretions; tissues; and cerebral, spinal, synovial, peritoneal, and amniotic fluids are treated as if they were infectious for HIV, HBV, and other blood-borne pathogens.

### **4. General Policies and Directives**

4.1. The Raleigh/Wake City-County Bureau of Identification has developed written exposure determinations and maintains a list of all job classifications in which employees have potential occupational exposure to blood-borne pathogens. All job tasks and procedures are classified into one of three categories to facilitate exposure determinations.

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A. Exposure determinations include:

4.2. Regular Exposure: tasks that involve potential for membrane or skin contact with blood, body fluids or tissues, and/or potential for spills or splashes of them. The following positions are classified as having a regular exposure risk:

DWI Blood Chemist  
Forensic Supervisor  
Forensic Latent Examiners  
Evidence Technician  
Forensic Photographer

4.3. Some Exposure: tasks that involve no exposure to blood, body fluids, or tissues normally but employment may require performing unplanned tasks that could fall in the Regular Exposure category described in Subsection 1 above. The following positions are classified as having some exposure risk:

Director  
Crime Laboratory Division Deputy Director  
Forensic Drug Chemist  
Forensic Computer Examiner  
Forensic Technicians

4.4. No Exposure: tasks that involve no exposure to blood, body fluids, or tissues, and potential exposure is not a condition of employment.

All other Bureau personnel are classified in the No Exposure category and are not responsible for adherence to this policy.

4.5. The Raleigh/Wake City-County Bureau of Identification establishes, maintains, and enforces work practices and standard operating procedures to eliminate or minimize the contact with blood and other potentially infectious materials. Employees are required to follow standard operating procedures as outlined in this document while performing duties classified as Regular Exposure and Some Exposure.

4.6. Hepatitis B Immunizations

4.6.1. All Raleigh/Wake City-County Bureau of Identification full-time personnel should have current Hepatitis B immunizations to perform jobs involving exposure to blood-borne pathogens. Hepatitis B immunizations will be provided at no cost to these employees. Wake County and the Raleigh/Wake City-County Bureau of Identification do not provide the initial Hepatitis B vaccine series free of charge to contract temporary employees, volunteers, or

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interns. All other aspects of this policy, and its standard operating procedures, apply to contract and temporary employees, students, and volunteers.

4.6.2. All full-time employees will be offered immunization for Hepatitis B free of charge and within 10 days of assignment to tasks with potential communicable disease exposure. Immunization for influenza, measles, mumps, rubella, poliomyelitis (polio), tetanus, and diphtheria are recommended. Employees who refuse immunization for Hepatitis B will be counseled on the occupational risks of communicable diseases and are required to sign a Hepatitis B Vaccine Declination Form. Employees who initially refuse immunization may later receive immunization for Hepatitis B upon request and free of charge.

## **5. CCBI Crime Laboratory Health and Safety Officer**

5.1. The Raleigh/Wake City-County Bureau of Identification will designate a Crime Laboratory Health and Safety Officer. It will be the Health and Safety Officers' responsibility to maintain all confidential files regarding exposure to blood-borne pathogens, as well as to maintain the confidential records connected with those exposures as required by OSHA regulations. The Health and Safety Officer will maintain records to indicate the compliance of personnel to the requirements set out in this policy and directive. Non-compliance with the policies and procedures will be reflected in the evaluations of each individual employee.

5.2. The Crime Laboratory Health and Safety Officer and the CCBI Training Coordinator will be responsible for initial and in-service training of all Raleigh/Wake City-County Bureau of Identification Crime Laboratory personnel in communicable diseases and infection control. Additionally, the Health and Safety Officer will provide regular updated training and evaluation of the Communicable Disease Program.

5.3. The Director shall appoint a Crime Laboratory Health and Safety Officer.

## **6. Personal Protective Equipment (PPE)**

### **6.1. Specification, Purchase, Storage, and Issue of Personal Protective Equipment (PPE)**

6.1.1. Standards for personal protective equipment (PPE) will be developed by the Crime Laboratory Health and Safety Officer and be updated or modified as needed.

6.1.2. CCBI is responsible for the supply, repair, replacement, and safe disposal of infection control PPE.

6.1.3. Each Supervisor will ensure that stock of PPE is adequate and supplies nearing expiration dates are used first.

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6.1.4. Available PPE will include sleeve protectors, laboratory coats, disposable gloves, rubber gloves for disinfection purposes, head covers, face masks, eye protectors, full face shields, disposable jump suits, leak-proof disposal bags, and shoe covers.

6.1.5. Disposable gloves will be constructed of latex/nitrile rather than plastic.

## 6.2. Selection and Use of Personal Protective Equipment (PPE)

6.2.1. Emergency response often is unpredictable and uncontrollable. While blood is the single most important source of HIV and HBV infection in the work place, it is safest to assume that all body fluids are infectious. For this reason, PPE will be chosen to provide barrier protection against all body fluids.

6.2.2. Evidence Receiving Unit operations should not only use safe laboratory practices but use special care when handling evidence contaminated with blood or other body fluids.

6.2.3. In general, employees should select PPE appropriate to the potential for spill, splash, or exposure to body fluids. No standard operating procedure of PPE ensemble can cover all situations. Common sense must be used. When in doubt, select maximal rather than minimal PPE.

6.2.4. Disposable latex/nitrile gloves will be worn during any contact with persons, living or dead, when potential exists for contact with blood, body fluids, non-intact skin, or other infectious material. All employees will carry extra pairs of disposable gloves in these situations.

6.2.5. Gloves will be replaced as soon as possible when soiled, torn, or punctured. Wash hands after glove removal.

6.2.6. Disposable latex/nitrile gloves will not be reused or washed and disinfected for reuse. Where possible, gloves should be changed between contacts with multiple persons.

6.2.7. Facial protection will be used in any situation where splash contact with the face is possible. Facial protection may be afforded by using both a face mask and eye protection, by using a full face shield, or by working in a biological safety cabinet.

6.2.8. Fluid-resistant disposable jump suits are designed to protect clothing from splashes. Cloth jump suits, sleeve protectors, and lab coats also provide protection. The decision to use barrier protection to protect clothing and skin surfaces, and the type of barrier protection used, will be left to the employee.



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6.2.9. Under certain circumstances, head covers and/or shoe covers will be required to protect these areas from potential contamination.

**Summary:**

- If it's wet, it's infectious - use gloves
- If it could splash onto your face, use eye shields and mask, full face shield, or biological safety cabinet.
- If it's airborne, mask yourself.
- If it could splash on your clothes, use a lab coat, sleeve protectors, or other barrier protection.
- If it could splash on your head or feet, use appropriate barrier protection

## **7. Definition of Occupational Exposure**

7.1. For the purpose of this document, an occupational exposure (i.e., exposure that occurs during the performance of job duties) that may place a worker at risk of a communicable disease is defined as (1) a percutaneous injury, e.g., a needle-stick or cut with a sharp object, or (2) contact of mucous membranes or contact of skin (especially when the exposed skin is chapped, abraded, or afflicted with dermatitis, or the contact is prolonged or involving an extensive area) with blood, tissue or other body fluids to which standard precautions apply, including semen, vaginal secretions or other body fluids contaminated with visible blood, because these substances have been implicated in the transmission of communicable diseases to include HBV and HIV.

7.2. The Wake County Health Nurse or his/her designee shall have the final authority in defining an exposure and determining whether or not a particular incident is classified as an exposure.

7.3. Standard precautions should be used in the presence of all body fluids including cerebrospinal fluid, synovial fluid, pleural fluid, peritoneal fluid, pericardial fluid, and amniotic fluid because the risk of disease transmission through these fluids has not been determined. Laboratory specimens that contain communicable diseases and suspensions of concentrated virus or other pathogens may also lead to an exposure.

## **8. Procedures for Exposure to Blood-borne Pathogens**

When an inadvertent percutaneous or permucosal exposure to blood or other potentially infectious materials occurs:

8.1. Employees are required to:

1. Remove contaminated personal protective equipment and place in a red bio-hazard labeled bag.

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2. Wash exposed areas (hand and other skin surfaces) with soap and water.

8.2. Immediately flush exposed mucous membranes with water and if exposed flush eyes with large amounts of water or eye wash solution.

1. Immediately report the exposure incident to his/her Supervisor.
2. If there is a spill of contaminated blood or breakage, immediately arrange for decontamination with an EPA approved disinfectant, such as phenolic or water, quaternary ammonia, germicidal detergent solution, or a 1:10 dilution of bleach.
3. Seek medical care if first-aid is needed.

8.3. WHEN AN EXPOSURE IS REPORTED

The Supervisor is required to:

1. Contact the Wake County Health Nurse or his/her designee.
2. Complete a Workers Compensation Report (Form 19 found in the Lotus Notes Safety Manual) and submit to Risk Management, provide a copy to the employee and the Crime Laboratory and/or Investigations Division Safety Officer(s).
3. Immediately arrange post exposure follow-up with the Wake County Health Nurse.
4. Inform the CCBI Crime Laboratory Health and Safety Officer.
5. Review standard operating procedures and methods to prevent future exposure with the employee.

**9. Health Maintenance**

9.1. Work restrictions for reasons of exposure control may be initiated by the Crime Laboratory Health and Safety Officer. These may be temporary or permanent. As an example, employees with extensive dermatitis or open skin lesions on exposed areas may be restricted from investigating bloody crime scenes or fingerprinting persons with bleeding wounds.

9.2. Any employee returning to work following debilitating injury or illness or communicable disease (occupational or non-occupational) will be cleared by their personal physician before returning to their duties.

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9.3. The Crime Laboratory Health and Safety Officer will maintain records in accordance with OSHA's C.F.R. 29, Part 1910.1030. Employee participation in the Exposure Control Program will be documented including:

- Name and SSN of employee. (SSN required by OSHA)
- Immunization records.
- Circumstances of exposure to communicable diseases.
- Post-exposure medical evaluation, treatment, and follow-up.

9.4. Exposure control records will become a part of the employee's personal health file and will be maintained for the duration of employment plus thirty (30) years.

9.5. Medical records are strictly confidential. Medical records will be maintained in the office of the Crime Laboratory Health and Safety Officer and will not be kept with personnel records. Medical records will not be released without the signed consent of the employee. There will be no exceptions to this policy for CCBI Administration, County Administration, or insurance companies.

9.6. Records of participation in employee assistance programs are considered medical records.

9.7. Employees may examine their own medical records and may request that copies be sent to their personal physician. Release of medical records to another physician will be made only with the signed written consent of the employee. Abstracts of medical records without personal identifiers may be made for quality assurance compliance monitoring or program evaluation purposes, as long as the identity of the individual employee cannot be determined from the abstract.

9.8. Communications between medical and personnel sections will focus on fitness to work or recommended restrictions rather than upon specified diagnoses.

## **10. Exposure Control Training**

10.1. All employees of the Raleigh/Wake City-County Bureau of Identification will be required to complete:

1. Initial exposure control training at the time of assignment to tasks where occupational exposure may occur. Coverage of the below listed elements by the Training Coordinator may satisfy this requirement.
2. Refresher training for employees performing tasks where exposure may occur will be conducted at least annually, or when tasks, or procedures are added, changed, or modified.

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10.2. All exposure control training materials will be appropriate in content and vocabulary to the educational level, literacy, and language of employees being trained.

10.3. Training will be in compliance with OSHA Regulation 29 C.F.R. Part 1910.1030 and shall include:

1. An accessible copy of 29 C.F.R. Part 1910.1030 and an explanation of its contents.
2. A general explanation of the epidemiology and symptoms of blood-borne diseases.
3. An explanation of the modes of transmission of blood-borne pathogens.
4. An explanation of the department exposure control plan and how the employee can obtain a copy.
5. An explanation of the appropriate methods for recognizing tasks and other activities that may involve exposure to blood and other potentially infectious materials.
6. Information on the types, proper use, location, removal, handling, decontamination and disposal of personal protective equipment.
7. An explanation of the basis for selection of personal protective equipment.
8. Information on the Hepatitis B vaccine, including information on its efficacy, safety, and the benefits of being vaccinated; and notification that the vaccine and vaccination will be provided at no charge.
9. Information on the appropriate actions to take and persons to contact in an emergency involving blood or other potentially infectious materials.
10. An explanation of the procedure to follow if an exposure incident occurs, including the method of reporting the incident and the medical follow-up that will be made available.
11. Information on the post-exposure evaluation and follow-up that the Bureau is required to provide following an exposure incident.
12. An explanation of the signs and labels and/or color coding required for biohazard materials; and information on the proper storage and disposal of biohazard materials.
13. Opportunity for interactive questions and answers.

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14. Exposure control trainers shall be knowledgeable in all of the program elements listed above, particularly as they relate to services provided by the Bureau.

10.4. Written records of all training sessions will be maintained in accordance with the North Carolina Retention and Disposition Schedule by the CCBI Training Coordinator.

10.5. Training records will include:

1. The dates of the training sessions.
2. The contents or a summary of the training sessions.
3. The names and qualifications of persons conducting the training.
4. The names and job titles of all persons attending the training sessions.

## **11. Wake County Detention Center Environment**

11.1. Storage, Decontamination, and Disposal Areas

11.2. The Raleigh/Wake City-County Bureau of Identification will designate separate, locked areas for:

1. Equipment decontamination and disinfection.
2. Storage of clean infection control personal protective equipment.
3. Storage of biohazard waste.

11.3. Under no circumstances will break rooms, bathrooms, or work areas be used for decontamination or storage of infectious waste.

11.4. The Person Decontamination Room (C1391) is designated as the decontamination area for personnel. All contaminated equipment and biohazard waste will be managed in the Putrefaction Room (C1394).

11.5. The Putrefaction Room (C1394) is designated as the decontamination area for the equipment and supplies and will be marked with biohazard signs and will be equipped with:

1. A sink constructed of nonporous materials.
2. Proper lighting and adequate ventilation.
3. Adequate counter areas constructed of nonporous materials.
4. Adequate rack space to allow air-drying of equipment.
5. Appropriate containers for disposal of biohazard waste.
6. Facilities for the safe storage, use, and disposal of cleansing and disinfecting solutions.
7. Appropriate PPE for the use of disinfecting solutions.

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8. Material safety data sheets (MSDS) for cleansing and disinfecting solutions.
9. Appropriate containers for disposal of biohazard waste.

11.6. All personnel using these solutions will be familiar with the MSDS and will use the recommended PPE.

11.7. Clean exposure control personal protective equipment will be stored in the Investigations Division Supply Room, the Criminal Identification Unit Supply Room, and the Administrative supply room. PPE will be available in the Civil Identification Units, the Evidence Labs, and the vehicle examination area. Individual examiners may also keep PPE in their respective work areas.

11.8. Infectious waste storage will be marked with biohazard signs and will be maintained in accordance with all EPA and local regulations. CCBI infectious waste storage will be in the Putrefaction Room. Covered trash cans lined with red biohazard bags will be readily accessible in the Putrefaction Room.

11.9. Other contaminated materials will be stored in leak-proof bags with appropriate biohazard markings and color coding.

11.10. If outside contamination of a disposal bag is a possibility, a second bag with an identical marking will be placed over the first.

11.11. Reusable bins and containers used to store biohazard waste will be inspected and cleaned monthly by the Crime Laboratory Chemical Hygiene Officer or designee. The Crime Laboratory Chemical Hygiene Officer or designee will be responsible for the cleaning, disinfecting, and/or arranging for disposal of the contents of any other reusable bins and containers used to store biohazard waste as found during the monthly examination that such bin or container has been used.

11.12. All disposal of biohazard waste will be in accordance with EPA and local regulations and will be performed by an approved licensed contractor designated by CCBI.

## **12. Contaminated Employee Clothing**

12.1. CCBI maintains clean uniform clothing. Contaminated clothing will be changed as soon as possible.

12.2. Under no circumstances will contaminated clothing be washed at home. This will protect the employee's family from both infectious and chemical contamination. Laundering instructions will be provided by the employee's Supervisor.

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12.3. Under no circumstances will any break room be used for the purpose of cleaning, sterilizing, disinfecting, storing, or disposing of any infectious material or waste.

12.4. Disposable hand-drying materials will be used. Cloth towels will not be used. Showers will be provided for all employees with exposure potential.

### **13. Infection Control Procedures**

#### **13.1. SCENE OPERATIONS**

13.2. The blood, body fluids, and tissues of all persons are considered potentially infectious, and Standard Precautions/Body Substance Isolation procedures will be used for all contact with these people.

13.3. Recommendations for use of personal protective equipment (PPE) are specified elsewhere in this guideline. Employees will be encouraged to use maximal rather than minimal PPE for each situation.

13.4. While complete control of the emergency scene is not possible, scene operations as much as possible will attempt to limit splashing, spraying, or aerosolization of body fluids.

13.5. The minimum number of employees required to complete the task safely will be used for all on-scene operations. Employees not immediately required at the scene will remain a safe distance from operations where communicable disease exposure is possible or anticipated.

#### **13.6. Hand washing is the most important infection control procedure.**

13.7. Employees will wash hands:

1. After removing PPE.
2. After each contact with a potentially contaminated subject.
3. After handling potentially infectious materials.
4. After cleaning or decontaminating equipment.
5. After using the bathroom.
6. Before eating.
7. Before and after handling or preparing food.

13.8. Handwashing with soap and water will be performed for ten to fifteen seconds. If soap and water are not available at the scene, a waterless handwash may be used, provided that a soap and water wash is performed immediately upon return to the office.

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13.9. Eating, drinking, smoking, handling contact lenses, or applying cosmetics or lip balm is prohibited at the scene.

13.10. Needles will not be recapped, resheathed, bent, broken, or separated from disposable syringes. **The most common occupational blood exposure occurs when needles are recapped.**

13.11. Disposable equipment will be used for sample collection and other operations where potential exposure to infectious materials is involved.

13.12. Personal protective equipment will be removed after leaving the work area and as soon as possible if contaminated. After use, all PPE will be placed in leak-proof bags, color coded, and marked as a biohazard, and transported back to the office for proper disposal.

13.13. On scene public relations will be handled by the senior officer on the scene, preferably of the rank of Supervisor or above. The public should be reassured that infection control PPE is used as a matter of routine for the protection of all employees and the public they come in contact with. The use of PPE does not imply that a given person may have a communicable disease.

13.14. No medical information will be released on scene. Media requests will be directed to the ranking officer of the agency having jurisdiction and handling the investigation.

13.15. At the conclusion of on-scene operations, all potentially contaminated equipment will be removed for appropriate disposal or decontamination and reuse.

#### **14. Decontamination and Clean-Up Procedures**

14.1. Upon return to the office, contaminated equipment will be removed and replaced with clean equipment. Supplies of PPE will be replenished.

14.2. Contaminated equipment will be stored only in the Putrefaction Room. Cleaning and decontamination will be performed as soon as practical.

14.3. Disposable equipment and other biohazard waste generated during on-scene operations will be stored in the biohazard disposal area in appropriate leak-proof containers.

14.4. Gloves will be worn for all contact with contaminated equipment or materials. Other PPE will be used depending on splash or spill potential. Heavy-duty utility gloves may be used for cleaning, disinfection, or decontamination of equipment.



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14.5. Eating, drinking, smoking, handling contact lenses, or applying cosmetics or lip balm is prohibited during cleaning or decontamination procedures.

14.6. Disinfection will be performed with a CCBI-approved disinfectant or with a 1:10 solution of bleach in water. All disinfectants will be tuberculocidal and EPA approved and registered.

14.7. Any damaged equipment will be cleaned and disinfected before being sent out for repair.

14.8. The manufacturer's guidelines will be used for the cleaning and decontamination of all equipment.

14.9. Durable equipment will be washed with hot soapy water, rinsed with clean water, and disinfected with an approved disinfectant or 1:10 bleach solution. Equipment will be allowed to air dry.

14.10. Delicate equipment (radios, flashlights, electronics, etc.) will be wiped clean of any debris using hot soapy water, wiped with clean water, then wiped with disinfectant or 1:10 bleach solution. Equipment will be allowed to air dry.

14.11. Work surfaces will be decontaminated with an appropriate disinfectant after completion of procedures, and after spillage or contamination with blood or potentially infectious materials.

14.12. Contaminated work clothes will be removed and exchanged for clean clothes. The employee will shower if body fluids were in contact with skin under work clothes.

14.13. Contaminated shoes or boots will be brush-scrubbed with a hot solution of soapy water, rinsed with clean water, and allowed to air dry.

14.14. Arrangements will be made to launder contaminated clothing. **Under no circumstances will contaminated work clothes be laundered at home by any employee.**

14.15. Infectious wastes generated during cleaning and decontamination operations will be properly bagged and placed in the biohazard disposal area.

## **15. Post-Exposure Procedures**

15.1. Any employee exposed to potentially infectious material will immediately wash the exposed area with soap and water or saline eye wash if the eyes are involved.

15.2. Any employee having an occupational communicable disease exposure will immediately report the exposure to his or her Supervisor. Needlestick injuries will be reported to the Crime Laboratory and/or Investigations Division Health and Safety Officer(s) immediately.

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15.3. The employee will fill out the appropriate report before completion of the shift for any of the following exposures:

- Needlestick injury.
- Break in skin caused by a potentially contaminated object.
- Splash of blood or other potentially infectious material onto eyes, mucous membranes, or non-intact skin.
- Mouth-to-mouth resuscitation without PPE.
- Other exposure that the employee may feel is significant.

15.4. The report will include details of the task being performed, the means of transmission, the portal of entry, and the type of PPE in use at the time.

15.5. The Supervisor will review the communicable disease report and forward it to Wake County Risk Management, the Wake County Health Nurse and the CCBI Crime Laboratory and/or Investigations Division Health and Safety Officer(s).

15.6. The Crime Laboratory and/or Investigations Division Health and Safety Officer(s) will evaluate the report for exposure hazards. If a possible exposure occurred, medical evaluation by the Wake County Health Department will be arranged by the Wake County Health Nurse and/or the CCBI Crime Laboratory and/or Investigations Division Health and Safety Officer(s) no later than 48 hours post-exposure. If no exposure took place, the Crime Laboratory and/or Investigations Division Health and Safety Officer(s) will counsel the employee on exposure hazards. The Crime Laboratory and/or Investigations Division Health and Safety Officer(s) will complete the communicable disease exposure report, indicating disposition of medical management, and file the report in the office of the Crime Laboratory and/or Investigations Division Health and Safety Officer(s).

15.7. The Crime Laboratory and/or Investigations Division Health and Safety Officer(s) may refer employees for infection control retraining.

15.8. The source patient will be traced to the receiving medical facility by the Crime Laboratory and/or Investigations Division Health and Safety Officer(s). The Crime Laboratory and/or Investigations Division Health and Safety Officer(s) will notify the receiving facility that a communicable disease exposure took place and request an infectious disease determination, as provided under the Ryan White Act of 1990. Request for consent to test the source patient for HIV and HBV will be made. The source patient has the right to refuse such testing under present regulations.

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15.9. The Wake County Health Department or designee will provide appropriate diagnostic workup and treatment of employee with communicable disease exposures. Services will include long-term follow-up and employee/spousal counseling.

15.10. Although not required by the Ryan White Act, medical treatment facilities will provide notification of diagnosis of blood-borne or other potentially communicable disease if disease transmission could have taken place. This policy will be carried out through cooperative agreements between medical treatment facilities and this agency. Patient confidentiality will be preserved in any notification procedure.

15.11. The Crime Laboratory Division Deputy Director will assume the duties of the Crime Laboratory Health and Safety Officer in his/her absence.

#### **16. Post Exposure Follow-Up**

16.1. The Crime Laboratory Health and Safety Officer is required to record the circumstances of exposure and post exposure management on the employee's confidential medical record.

#### **17. Compliance and Quality Monitoring/Program Evaluation**

17.1. The Crime Laboratory Health and Safety Officer will ensure compliance of the following:

1. Inspections of CCBI facilities
2. Observation of on-scene activities, as applicable
3. Analysis of reported exposures to communicable diseases, as applicable

17.2. The Crime Laboratory Health and Safety Officer will reevaluate the program at least annually to ensure that the program is effective and appropriate. In addition, the program will be reevaluated as needed to reflect any significant changes in assigned tasks or procedures, in medical knowledge related to infection control, or in regulatory matters.

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May 23, 2013	1	Adherence with ASCLD/LAB requirements

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## CHAPTER 8 – CHEMICAL HYGIENE PLAN

1. The general intent of the chemical hygiene plan for Raleigh/Wake City-County Bureau of Identification Crime Laboratory is:

- To protect laboratory employees from health hazards associated with the use of hazardous chemicals in our laboratory,
- To assure that our laboratory employees are not exposed to substances in excess of the permissible exposure limits as defined by OSHA in 29 CFR 1910 Subpart Z.

2. The plan will be available to all employees in the Safety Manual located on the Shared Drive.

3. This plan will be reviewed annually by the Crime Laboratory Chemical Hygiene Officer and updated as necessary.

### **4. General Procedures for Working with Chemicals in the Laboratory**

4.1. The risk of laboratory injuries can be reduced through adequate training, improved engineering, good housekeeping, safe work practice and personal behavior.

1. Unauthorized experiments should not be performed.
2. Plan safety procedures before beginning any operation.
3. Follow standard operating procedures at all times.
4. Always read the MSDS and label before using a chemical.
5. Wear appropriate PPE at all times.
6. To protect your skin from splashes, spills and drips, always wear long pants and closed-toe shoes.
7. Use appropriate ventilation when working with hazardous chemicals. Always use a fume hood when potentially hazardous gases, chemicals, solvents, fumes, mists, smokes, aerosols, dust, etc., are involved in a mechanical or chemical procedure.
8. Pipetting should never be done by mouth.
9. Hands should be washed with soap and water immediately after working with any laboratory chemicals, even if gloves have been worn.
10. Eating, drinking, smoking, gum chewing, applying cosmetics, and taking medicine in laboratories where hazardous chemicals are used or stored is prohibited.
11. Food, beverages, cups, and other drinking and eating utensils should not be stored in areas where hazardous chemicals are handled or stored.
12. Laboratory refrigerators, freezers, and ovens shall not be used for food storage or preparation.

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13. Contact the Supervisor, Technical Leader, Health and Safety Officer, and/or Chemical Hygiene Officer with all safety questions or concerns.
14. Know the location and proper use of safety equipment.
15. Maintain situational awareness.
16. Make others aware of special hazards associated with your work.
17. Notify supervisors of chemical sensitivities or allergies.
18. Report all injuries, accidents, incidents, and near misses.
19. All non-laboratory personnel shall adhere to security procedures.
20. Report unsafe conditions to the Supervisor, Technical Leader, Health and Safety Officer, and/or Chemical Hygiene Officer.
21. Properly dispose of chemical wastes.
22. Keep work areas clean and uncluttered.

## **5. Compressed Gases**

5.1. Compressed gases, because of their unique properties and hazards, should be handled and used with care. Some of the properties of compressed gases requiring consideration are high pressure, rapid diffusion, low flash points for flammable gases, lack of odor and color for most gases, transparency, and the cooling effect upon rapid release. Diffusion of leaking gases may cause rapid contamination of the atmosphere, giving rise to toxic anesthetic effects, asphyxiation, or rapid formation of explosive concentrations of flammable gases. Contact with rapidly expanding gas may cause burns or frostbite.

5.2. The procedures necessary for the safe handling of compressed gases are important for the containment of the gases to prevent their escape to the atmosphere. In addition, safe handling of compressed gases is essential for proper control of pressure and flow in the systems in which they are used.

5.3. As a safety measure, chemists must be familiar with the proper methods of handling compressed gas cylinders and compressed gas systems.

5.4. Examine compressed gas cylinders upon receipt. If there is any indication of damage, leakage, or improper labeling, remove the cylinder to an isolated area and return it to the supplier as soon as possible. Refer to the Drug Chemistry Unit or DWI Blood Chemistry Unit Technical Procedure for Quality Assurance.

1. Make sure all cylinders are upright and are securely fastened using the wall, bench top, or floor holders.
2. Cylinders must be properly capped before transporting and secured in a cylinder truck
3. Avoid dropping or permitting cylinders to strike each other violently.
4. Never drag, roll, or slide cylinders, even for short distances.

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5. Leave the valve protective cap in place on cylinders until they are secured in place and ready for use.
6. Tag cylinders and ensure that they are properly labeled indicating their contents and whether they are full or empty.
7. Use cylinders in rotation as received from the suppliers – first in, first placed in use.
8. Close the valves, replace the protective cap, and tag empty cylinders before returning them to the supplier.
9. Check the label and be sure of the purpose for which the cylinders are to be used.
10. Make sure compressed gas systems are secure and not leaking.
11. The regulator should be attached to the cylinder without forcing the threads. If the inlet of the regulator does not fit properly, its intended use may not be for that particular gas or cylinder.
12. Open the cylinder valve slowly until the tank gauge on the regulator registers the cylinder pressure. At this point, the cylinder pressure should be checked to see if it is at the expected value. A large error may indicate that the cylinder is leaking. A cylinder may also be checked for leaks by using a leak detector.
13. If necessary, with the flow control valve at the regulator outlet closed, turn the delivery pressure-adjusting screw clockwise until the required delivery pressure is reached.
14. Open the flow control valve to the system.

5.5. If a problem is observed the regulator function may be checked:

1. Drain all pressure from the system; gauges should read zero.
2. Open the cylinder valve and turn the adjusting screw counterclockwise until it turns freely. The high pressure gauge should register the cylinder pressure and the delivery pressure gauge should not indicate any pressure.
3. With the regulator outlet needle valve closed, the delivery pressure gauge should not indicate a pressure increase after 10 minutes, which would indicate leakage across the internal valve system.
4. Turn the adjusting screw clockwise until a normal delivery pressure is indicated. The inability to obtain a proper delivery pressure setting or abnormal adjustment of the screw indicates improper operations. Continued wear on a regulator valve and seat assembly will cause pressure to rise above the set delivery pressure (termed “crawl”). Regulators showing “crawl” should not be used.
5. An excessive fall in delivery pressure under operating conditions and normal flows indicates that an internal blockage exists or that the cylinder valve has not been sufficiently opened.
6. Any deviation from the normal in the above checkout will require repair of the regulator. Regulators will be repaired only by approved vendors.

5.6. Properties of Some Common Compressed Gases

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- Helium – colorless, odorless, tasteless, nontoxic, but can act as an asphyxiant.
- Hydrogen – nontoxic, flammable; can act as an asphyxiant.
- Air – colorless, odorless, nontoxic, combustible
- Nitrogen – colorless, odorless, nontoxic; can act as an asphyxiant

5.7. Leaking gas cylinders may cause serious hazards that may require an immediate evacuation of the area and activation of the emergency response system.

## **6. Chemical Procurement**

6.1. The decision to procure a chemical constitutes a commitment to handle and use the chemical properly from initial receipt to ultimate disposal. Chemical inventories should be kept to a minimum.

6.2. Personnel who receive chemical shipments shall be knowledgeable of the proper procedures for receipt. Chemical containers shall not be accepted without accompanying labels and packaging in accordance with all appropriate regulations. All chemical shipments shall be dated when received and opened. Material Safety Data Sheets (MSDS) shall be available.

6.3. When a chemical new to the CCBI Crime Laboratory needs to be procured, the CHO must be notified. The CHO must evaluate the chemical for any hazards and provide any necessary training to employees prior to its receipt and use.

## **7. Hazard Identification**

7.1. All incoming chemicals must have appropriate labels and Material Safety Data Sheets, in compliance with the Hazard Communication Standard (29 CFR 1910.1200). Material Safety Data Sheets are available to employees and maintained by the Chemical Hygiene Officer at <https://msdsmanagement.msdsonline.com/ViewerSite/MSDSSearch.aspx>.

## **8. Chemical Storage**

8.1. Received chemicals shall be maintained in the designated storage area for each Unit. Designated storage areas shall be labeled and well illuminated. Chemicals shall be segregated by hazard classification and compatibility. Large containers shall be stored as close to the floor as possible.

### **8.1.1. Drug Chemistry Unit**

1. Store acids in the corrosive cabinet labeled “Acids.”
2. Store bases in the corrosive cabinet labeled “Bases.”
3. Store corrosives in a corrosive cabinet.



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4. Store flammable chemicals in the cabinets labeled “Flammable.”
5. Store toxic chemicals in the general chemical storage cabinet on the shelf labeled “Toxic.”
6. Store reactive and oxidizing chemicals in the general chemical storage cabinet on the shelf labeled “Reactive and Oxidizing.”
7. Store chemicals that present no more than moderate hazard in the above categories in the general chemical storage cabinet on the shelf labeled “General.”

**8.1.2. DWI Blood Chemistry Unit**

1. Store acids and bases separately.
2. Store flammable chemicals in the cabinets labeled “Flammable.”

8.2. Limit storage of chemicals at the laboratory bench or other work areas to amounts as small as practical and do not expose them to sunlight or heat.

8.3. Stored chemicals shall be examined at least annually during the annual internal audit by the CHO for replacement, deterioration, and container integrity. The inspection shall determine whether any corrosion, deterioration, or damage has occurred to the storage facility as a result of leaking chemicals.

**9. Chemical Handling**

9.1. Based on the realization that all chemicals inherently present hazards in certain conditions, exposure to all chemicals shall be minimized. Each employee shall develop and implement work habits consistent with this CHP to minimize personal and co-worker exposure to chemicals.

9.2. The following general precautions shall be followed:

1. Skin contact with all chemicals shall be avoided.
2. Employees shall wash all areas of exposed skin prior to leaving the work area.
3. Mouth pipetting or starting a siphon is prohibited.
4. Eating, drinking, smoking, gum chewing, or applying cosmetics is prohibited in areas where chemicals are present. Hands shall be washed thoroughly prior to performing these activities.
5. Storing, handling, and consuming food or beverages shall not occur in or near storage areas, refrigerators, glassware or utensils used for Laboratory operations.
6. Risk determinations shall be conservative in nature.
7. Any chemical mixture shall be assumed to be as toxic as its most toxic component.
8. Substances of unknown toxicity shall be assumed to be toxic.

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9. Laboratory employees shall read the MSDS of all chemicals being used and shall be familiar with the symptoms of exposure for the chemicals with which they work and the precautions necessary to prevent exposure.
10. The intent and procedures of this CHP shall be adhered to continuously.
11. In all cases of chemical exposure, neither the Permissible Exposure Limits (PELs) of OSHA nor the Threshold Limit Values (TLVs) of the American Conference of Governmental Industrial Hygienists (ACGIH) shall be exceeded.
12. Specific precautions based on the toxicological characteristics of individual chemicals shall be implemented as deemed necessary by the CHO.

## **10. Equipment and Glassware**

10.1. Each employee shall keep work areas clean and uncluttered. All chemicals and equipment shall be properly labeled. At the completion of each operation, the work area shall be cleaned thoroughly and all equipment properly cleaned and stored. In addition, the following procedures shall apply to the use of laboratory equipment:

1. All laboratory equipment shall be used only for its intended purpose.
2. All glassware shall be handled and stored with care to minimize breakage; all broken glassware shall be placed immediately in a container for broken glass.

## **11. Personal Protective Equipment, PPE**

11.1. In general, employees should select PPE appropriate to the potential for spill, splash, and/or exposure. No standard operating procedure of PPE ensemble can cover all situations. Common sense must be used. When in doubt, select maximal rather than minimal PPE.

11.2. To protect your skin from splashes, spills and drips, always wear long pants and closed-toe shoes.

11.3. Laboratory coats are provided and shall be worn in the Laboratory when the possibility of contamination exists. Laboratory coats shall be laundered on a periodic basis, at least monthly. Laboratory coats shall be removed immediately upon discovery of contamination and not be used until laundered.

11.4. Appropriate chemical resistant gloves shall be worn at any time there may be skin contact with chemicals. Used gloves shall be inspected and washed prior to re-use. Damaged or deteriorated gloves shall be replaced immediately.

## **12. Personal Work Practices**

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12.1. All employees shall remain vigilant to unsafe practices and conditions and shall report immediately such practices and/or conditions to the Safety Officer and Forensic Science Quality Manager and the Deputy Director. The Forensic Scientist Quality Manager shall correct unsafe practices and/or conditions promptly.

12.2. Employees shall work to minimize contact with chemicals, avoid unnecessary exposure and set a proper example to encourage the safe work practices of co-workers.

12.3. Supervisor and Technical Leaders shall ensure that each employee knows and follows the rules and procedures established in this plan.

12.4. Long hair and loose fitting clothing shall be confined close to the body to avoid being caught in any moving equipment parts.

12.5. No chemical shall be sniffed or tasted.

12.6. Employees shall seek information and advice from knowledgeable persons, standards, and codes regarding hazards present in the Laboratory. Operations and protective measures shall be planned and equipment selected accordingly.

12.7. Personal protective equipment shall be inspected prior to use and appropriate protective equipment shall be worn as procedures dictate and when necessary to avoid exposure.

### **13. Labeling**

13.1. All containers in the Laboratory that contain chemicals shall be labeled. The label shall be informative, durable, and shall identify contents, date of acquisition or date prepared, and expiration date.

13.2. Exceptions to labeling requirements shall be made for chemical transfers from a labeled container into a container which is intended only for the immediate use of the employee who performed the transfer.

13.3. Before transferring chemicals for immediate use, the employee shall be trained in the use of MSDS and shall have read the MSDS for the specific chemical being transferred.

13.4. The labeling of reagents and chemicals shall be inspected annually by the CHO (to coincide with annual internal audits) to ensure labels have not been defaced or removed.

### **14. Criteria for Implementation of Control Measures**

14.1. Refer to the Wake County Safety Manual, Section 1001.

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## **15. Housekeeping**

15.1. Each employee is directly responsible for the cleanliness of his or her work space, and jointly responsible for common areas.

15.2. The following procedures apply to the housekeeping standards of the Laboratory:

1. All chemical wastes shall be disposed of properly.
2. Laboratory benches shall be kept clear of equipment and chemicals except as necessary for the work currently being performed.
3. If used, the work area shall be cleaned at the end of each operation and each shift.
4. Glassware shall be cleaned after each use and returned to storage each shift.
5. All equipment shall be cleaned thoroughly upon completion of use.
6. All floors, aisles, exits, fire extinguishing equipment, eye washes, showers, and other emergency equipment shall remain unobstructed.

## **16. Safety and Emergency Equipment**

16.1. Telephone numbers of emergency personnel and other workers as deemed appropriate shall be posted in a common and accessible area.

16.2. Employees shall be trained in the proper use of fire extinguishers and spill kits. Prior to the procurement of new chemicals, the Section CHO shall verify that existing extinguishers, spill kits and any other emergency equipment are appropriate for such chemicals.

16.3. All employees who may be exposed to chemical splashes shall be instructed in the location and proper use of emergency showers and eye washes.

## **17. Engineering Controls**

17.1. Engineering controls are those architectural features designed to decrease injuries. These include shields, hoods, safety cabinets, special ventilation systems, cabinets for the storage of hazardous chemicals / materials, etc. Engineering controls are intended to minimize employee exposure to chemical and physical hazards in the workplace and shall be maintained in proper working order.

17.2. No modification of engineering controls shall occur unless testing indicates that employee protection shall continue to be adequate.

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17.3. Improper function of engineering controls shall be reported to the Chemical Hygiene Officer immediately. The system shall be taken out of service until proper repairs have been executed.

17.4. All employees shall follow proper work practices when using the engineering controls.

**17.5. Local Exhaust Ventilation**

1. Openings of hoods shall be placed as close as possible to sources of air contaminant.
2. The screen on the face of the hood shall be cleaned prior to use.
3. Hood fans shall be operated when hoods are being used.
4. After using hoods, the fan shall be operated for an additional period of time sufficient to clear residual contaminants from the duct work.

**17.6. Laboratory Fume Hoods**

1. Laboratory hoods shall be utilized for all chemical procedures which might result in release of hazardous chemical vapors or dust. As a general rule, the hood shall be used for all chemical procedures involving substances which are volatile or toxic.
2. Adequate hood ventilation performance shall be confirmed prior to opening chemical containers inside the hood. Note: If the hood does not have adequate ventilation, an alarm will sound.
3. The sash of the hood shall be lowered at all times except when working within the hood. At these times, the sash height shall be maintained as low as possible.
4. Storage of chemicals and equipment inside the hood shall be kept to a minimum.
5. Interference with the inward flow of air into the hood shall be minimized.
6. All work shall be performed at least six inches inside the sash.
7. The hoods shall be in operation at all times.
8. The ventilation system shall be certified annually by a designated vendor. The hood face velocity shall be maintained between 75 and 125 feet per minute. Fume hood certification records shall be maintained by the CHO in each Unit.

**18. Employee Information and Training**

**18.1. All employees shall be informed of**

1. The contents of OSHA standard 29 CFR 1910.1450 and its appendices, which shall be made available to employees.
2. The location and availability of the CCBI Crime Laboratory Chemical Hygiene Plan.
3. The permissible exposure limits for OSHA regulated substances or recommended exposure limits for other hazardous chemicals where there is no applicable OSHA standard. <http://www.osha.gov/dsg/topics/pel/>

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4. Signs and symptoms associated with exposures to hazardous chemicals used in the laboratory.
5. The location and availability of known reference material on the hazards, safe handling, storage, and disposal of hazardous chemicals found in the laboratory including, but not limited to, Material Safety Data Sheets received from the chemical supplier.

18.2. Each employee shall receive training by the Chemical Hygiene Officer or designee at the time of initial assignment and prior to assignments involving new exposure situations. Employee training shall include

1. Methods and observations that may be used to detect the presence or release of a hazardous chemical, such as monitoring conducted by the County, continuous monitoring devices, visual appearance or odor of hazardous chemicals when being released, etc.
2. The physical and health hazards of chemicals in the work area.
3. The measures employees can take to protect themselves from these hazards, including any specific procedures the County has implemented to protect employees from exposure to hazardous chemicals, such as appropriate work practices, emergency procedures, and personal protective equipment to be used.
4. The applicable details of the CCBI Crime Laboratory Chemical Hygiene Plan.

## **19. Medical Consultation and Medical Examinations**

19.1. Wake County must provide all employees who work with hazardous chemicals an opportunity to receive medical attention, including any follow-up examinations which the examining physician determines to be medically necessary, under the following circumstances:

1. Whenever an employee develops signs or symptoms associated with a hazardous chemical to which the employee may have been exposed in the laboratory, the employee shall be provided an opportunity to receive an appropriate medical examination.
2. Where exposure monitoring reveals an exposure level routinely above the action level (or the PEL) for an OSHA regulated substance for which there are exposure monitoring and medical surveillance requirements, medical surveillance shall be established for the affected employee as prescribed by the particular standard.
3. Whenever an event takes place in the work area such as a spill, leak, explosion, or other occurrence resulting in the likelihood of a hazardous exposure, the affected employee shall be provided an opportunity for a medical consultation. This consultation shall be for the purpose of determining the need for a medical examination.

19.2. All medical examinations and consultations shall be performed by or under the direct supervision of a licensed physician and shall be provided without cost to the employee, without loss of pay, and at a reasonable time and place. Employees must report the exposure incident to their supervisor. The supervisor must notify the Chemical Hygiene Officer, the Health and

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Safety Officer, the Forensic Quality Manager, and/or the Crime Laboratory Deputy Director. Employees should complete the "Wake County Employee Accident/Injury Report" form used for reporting on-the-job injuries. The form should be forwarded to the Risk Manager.

19.3. The supervisor or Chemical Hygiene Officer should use the "Exposure to Hazardous Chemicals Incident Report" form to provide information to the Physician. The employee shall take this form to the physician. The supervisor or Chemical Hygiene Officer shall forward a copy of the completed form to the Health and Safety Officer to be placed in the employee medical records.

19.4. The Crime Laboratory Deputy Director or designee should use the "Physician's Written Opinion" form to request the Physician's Written Opinion. After discussing the written opinion with the employee, the Crime Laboratory Deputy Director or designee shall forward the Physician's Written Opinion to the Health and Safety Officer to be placed in the employee medical records.

## **20. Use of Respirators**

20.1. Where the use of respirators is necessary to maintain exposure below permissible exposure limits, the Health and Safety Officer shall assure that employees receive the proper respiratory equipment. Respirators shall be selected and used in accordance with the County's Respiratory Protection Policy and 29 CFR 1910.134.

## **21. Record-keeping**

21.1. The Health and Safety Officer shall forward all employee exposure monitoring records to the Risk Manager.

21.2. The Health and Safety Officer shall maintain all medical records and physicians' written opinions.

## **22. Special Precautions**

22.1. When procedures require the use of chemicals that are allergens, embryo toxins, teratogens, carcinogens, moderate chronic or high acute toxicity, the following additional special precautions shall be used.

1. Areas where these chemicals are stored and used shall have restricted access.
2. Protective gloves shall be worn when there is risk of exposure to these chemicals or substances of unknown activity.
3. These chemicals shall only be transferred in a chemical fume hood.
4. Proper personal protective equipment shall be used to prevent exposure.

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5. Gloves and long sleeve laboratory coats shall be worn. Hands and arms shall be washed immediately after working with these chemicals.

## **23. Chemical Spills, Releases and Accidents**

23.1. Any spill on benches or floors shall be cleaned immediately and the waste shall be disposed of properly. If the employee who causes or notices the spill does not feel capable of cleaning the spill, then the employee shall notify the CHO and/or the Supervisor who shall determine the best course of action for addressing the spill. Refer to Chapter 11 Emergency Evacuation.



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## CHAPTER 9 – HAZARDOUS WASTE MANAGEMENT PLAN

### 1. Hazardous Waste Laws

1.1. The Resource Conservation and Recovery Act (RCRA) is a US law that provides, in broad terms, the general guidelines for the waste management program envisioned by Congress. It includes a Congressional mandate directing EPA to develop a comprehensive set of regulations to implement the law. The hazardous waste program, under RCRA Subtitle C, establishes a system for controlling hazardous waste from the time it is generated until its ultimate disposal — in effect, from “cradle to grave.”

1.2. The Hazardous Waste Section of the North Carolina Division of Waste Management of the North Carolina Department of Environment and Natural Resources ensures the safe management of hazardous waste in North Carolina. They apply the adopted federal rules that incorporate the Resource Conservation and Recovery Act requirements and additional state rules. The section also oversees the RCRA Used Oil regulations.

State Law -Solid Waste Management

State Rules and Regulations - Hazardous Waste Management

### 2. Hazardous Waste Regulations

2.1. EPA regulations, or rulemakings, translate the general mandate of RCRA into a set of requirements for the Agency and the regulated community. The RCRA hazardous waste program regulates commercial businesses as well as federal, State, and local government facilities that generate, transport, treat, store, or dispose of hazardous waste.

2.1. Hazardous waste is a waste with properties that make it dangerous or potentially harmful to human health or the environment. In regulatory terms, a RCRA hazardous wastes fall into two categories:

2.1.1. Listed Wastes, which appear on one of the four hazardous wastes lists established by EPA regulations:

- **The F-list** (non-specific source wastes), which can be found in the regulations at 40 CFR §261.31.
- **The K-list** (source-specific wastes), which can be found in the regulations at 40 CFR §261.32.
- **The P-list and the U-list** (discarded commercial chemical products), which can be found in the regulations at 40 CFR §261.33.

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2.1.2. Characteristic wastes, which exhibit one or more of four characteristics defined in 40 CFR Part 261 Subpart C:

- **Ignitability**, as described in 40 CFR §261.21.
- **Corrosivity**, as described in 40 CFR §261.22.
- **Reactivity**, as described in 40 CFR §261.23.
- **Toxicity**, as described in 40 CFR §261.24.

2.2. 40 CFR Part 260 contains all of the RCRA regulations governing hazardous waste identification, classification, generation, management and disposal.

1. Part 260 – Hazardous Waste Management System: General
2. Part 261 – Identification And Listing Of Hazardous Waste
3. Part 262 – Standards Applicable To Generators Of Hazardous Waste
4. Part 263 – Standards Applicable To Transporters Of Hazardous Waste
5. Part 264 – Standards For Owners And Operators Of Hazardous Waste Treatment, Storage, And Disposal Facilities
6. Part 265 – Interim Status Standards For Owners And Operators Of Hazardous Waste Treatment, Storage, And Disposal Facilities
7. Part 266 – Standards For The Management Of Specific Hazardous Wastes And Specific Types Of Hazardous Waste Management Facilities
8. Part 267 – Standards For Owners And Operators Of Hazardous Waste Facilities Operating Under A Standardized Permit
9. Part 268 – Land Disposal Restrictions
10. Part 270 – EPA Administered Permit Programs: The Hazardous Waste Permit Program
11. Part 271 – Requirements For Authorization Of State Hazardous Waste Programs
12. Part 272 – Approved State Hazardous Waste Management Programs
13. Part 273 – Standards For Universal Waste Management
14. Part 279 – Standards For The Management Of Used Oil
15. Part 280 – Technical Standards And Corrective Action Requirements For Owners And Operators Of Underground Storage Tanks (UST)
16. Part 281 – Approval Of State Underground Storage Tank Programs
17. Part 282 – Approved Underground Storage Tank Programs
18. Parts 283 to 299 [Reserved]

### 3. Hazardous Waste Management

3.1. The Crime Laboratory Division of the Raleigh/Wake City County Bureau of Identification must comply with regulatory programs established by the U.S. Environmental Protection Agency (EPA) and the NC Department of Environment and Natural Resources (NCDENR). The RCRA establishes a “cradle-to-grave” management system for hazardous waste and applies to all CCBI

3.2. Crime Laboratory personnel who use chemicals and generate hazardous waste in the

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laboratory. The objective of this hazardous waste management system is to ensure that hazardous waste is handled in a manner that protects human health and the environment. Under EPA regulations, hazardous waste is regulated 1) as soon as it is generated – the point that a chemical or material becomes a waste, 2) during transport and handling, and 3) through treatment, storage, or disposal.

3.3. The Crime Laboratory Division of the Raleigh/Wake City-County Bureau of Identification has developed this Hazardous Waste Management Plan which is available to all employees through the Safety Manual and is maintained by the CHO. The CHO shall review this plan annually to coincide with the CCBI Crime Laboratory annual internal audits and as needed.

3.4. Hazardous waste generated by the DWI Blood Chemistry Unit and Drug Chemistry Unit includes laboratory wastes (chemicals and solvents) as identified in the following disposal guide. As a hazardous waste generator, personnel assume a number of responsibilities. The purpose of this guide is to assist personnel with hazardous waste regulatory requirements ensuring that Federal and State requirements are satisfied. The guide is divided in separate categories for each type of laboratory process conducted by the DWI Blood Chemistry Unit and the Drug Chemistry Unit. By following this guide, personnel should find it easier to manage the day-to-day compliance with the applicable hazardous waste regulations. Individuals with questions concerning waste disposal procedures should contact the CCBI Crime Laboratory Chemical Hygiene Officer.

#### **4. Generator Status**

4.1. Under the RCRA, a generator is defined as “any person, by site, whose act or process produces hazardous waste...or whose act first causes a hazardous waste to become subject to regulation.” These generators are subject to standards that govern on-site accumulation and off-site transportation of such material.

4.2. The CCBI Crime Laboratory is classified as a conditionally exempt small quantity generator (CESQG) under EPA regulations because it generates less than 100 kilograms of hazardous waste in a calendar month. A CESQG is exempt from most provisions of RCRA hazardous waste regulations, provided the waste is characterized; the accumulated waste does not exceed specified limits; and waste is either treated or disposed of in an appropriate hazardous waste facility.

4.3. A CESQG is not subject to RCRA accumulation time limits provided the amounts accumulated do not exceed allowable limits (e.g., 1000 of hazardous waste). If this accumulation quantity limit is exceeded, waste shall be regulated as the next generator status level – small quantity generator (SQG), which may accumulate up to 6000 kg of hazardous for only 180 days. The Laboratory shall strive to maintain CESQG status.

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## **5. Hazardous Waste Definitions**

5.1. For a material to be classified as hazardous waste, it shall first meet the definition of solid waste. Under RCRA regulations, solid waste is defined as any material or combination of materials (solid, semi-solid, liquid, or contained gas) that has been discarded (as defined in 40 CFR 261.2) by the generator.

*5.1.1. Solid Waste* - a material that is no longer used or wanted and is set aside for disposal. Solid waste includes abandoned items, materials that are ready to be disposed, or those that are ready to be recycled. Materials are solid waste if they are abandoned by being disposed of; burned or incinerated; or accumulated, stored, or treated (but not recycled) before or in lieu of being abandoned by being disposed of, burned, or incinerated. Solid waste may be solid, liquid, or gas. EPA regulations on waste automatically exempt certain solid waste from being considered hazardous. Among those subject to exemption are agricultural waste returned to the ground as fertilizer, utility waste from coal combustion, nuclear sources or domestic sewage. The EPA has also adopted a conditional exemption for waste samples to be used for testing.

*5.1.2. Inherently Waste-like Materials* - Chemicals no longer suitable for use are considered inherently waste-like materials and are subject to hazardous waste regulations. Examples include:

- Chemicals no longer used, e.g., expired date.
- Chemicals with obliterated labels, e.g., corroded, faded, or smeared.
- Chemicals with no labels, e.g., sample vials, jars, or beakers.
- Samples that cannot be identified.

5.2. If a substance is not considered to be discarded or solid waste, it shall not be regulated as a solid waste.

5.3. There are two basic categories of hazardous waste: (1) solid waste that is listed as hazardous by EPA or by the North Carolina Department of Environment and Natural Resources (NCDENR), and (2) solid waste which, while not listed, displays one of the four hazardous characteristics.

## **6. Types of Hazardous Wastes**

6.1. RCRA defines a hazardous waste as a solid waste that because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause or significantly contribute to an increase in serious; irreversible; or incapacitating, reversible illnesses or pose a substantial present or potential hazard to human health, safety, or welfare to the environment when improperly treated, stored, transported, used, or disposed of or otherwise managed.

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6.2. Listed Wastes - By definition, EPA determined that some specific wastes are hazardous. These wastes are incorporated into lists published by the Agency. These lists are organized into three categories:

1. The F-list (non-specific source wastes): Because the processes producing these wastes can occur in different sectors of industry, the F-listed wastes are known as wastes from non-specific sources. Wastes included on the F-list can be found in the regulations at 40 CFR §261.31.
2. Examples: Spent halogenated solvents such as methylene chloride. Spent non-halogenated solvents such as ethyl ether, pyridine, acetone and methanol.
3. The K-list (source-specific wastes): This list includes certain wastes from specific industries, such as petroleum refining or pesticide manufacturing. Wastes included on the K-list can be found in the regulations at 40 CFR §261.32. This list is not applicable to the CCBI Crime Laboratory.
4. The P-list and the U-list (discarded commercial chemical products): These lists include specific commercial chemical products in an unused form. Wastes included on the P- and U-lists can be found in the regulations at 40 CFR §261.33. (Examples of P-list: potassium and sodium cyanides. Examples of U-list: acetaldehyde, acetone, acetonitrile, chloroform, methanol, methylene chloride and selenious acid)

6.3. Characteristic Wastes – A solid waste can also be considered a hazardous waste if it exhibits one or more of the hazardous waste characteristics (termed a characteristic waste): ignitability, corrosivity, reactivity, or toxicity.

6.3.1. Ignitability (EPA Code D001) - A solid waste that has any of the following properties displays the characteristic of ignitability and is considered a hazardous waste:

- A liquid, other than an aqueous solution containing less than 24 percent alcohol by volume, with a flash point below 60°C (140°F);
- A non-liquid, capable under standard temperature and pressure, of causing fire through friction, absorption of moisture or spontaneous chemical changes, and when ignited burns so vigorously and persistently that it creates a hazard;
- An ignitable compressed gas, which includes gases that form flammable mixtures at a concentration of 13 percent or less in air; or
- An oxidizer, such as permanganate, inorganic peroxide, or nitrate that readily stimulates combustion of organic materials.

6.3.2. Corrosivity (EPA Code D002) - A solid waste that has any of the following properties displays the characteristic of corrosivity and is considered a hazardous waste:

- Is aqueous and has a pH less than or equal to 2 or greater than or equal to 12.5, using EPA-specified or approved test methods; or

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- Is a liquid and corrodes steel (SAE 1020) at a rate greater than 6.35 mm (0.25 inch) per year at a test temperature of 55°C (130°F).

6.3.4. Reactivity (EPA Code D003) - A solid waste that has any of the following properties displays the characteristic of reactivity and is considered a hazardous waste:

- Is normally unstable and readily undergoes violent change without detonation;
- Reacts violently with water;
- Forms potentially explosive mixtures with water;
- When mixed with water, generates toxic gases, vapors, or fumes in a quantity sufficient to present a danger
- Is a cyanide or sulfide bearing waste that generates toxic gases, vapors, or fumes at a pH between 2 and 12.5;
- Is capable of detonation or explosive reaction when subject to a strong initiating source or if heated in confinement;
- Is readily capable of detonation, explosive decomposition, or reaction at standard temperature and pressure; or
- Is an explosive.

6.3.5. Toxicity (EPA Series D) - Materials that fail the test because of the presence of certain heavy metals or organic constituents above regulated levels.

## **7. Hazardous Waste Determination**

7.1. The CHO is responsible for conducting a hazardous waste determination for all chemicals used within the Crime Laboratory. This determination shall include a Disposal Guide to assist employees in the use, maintenance, and disposal of all chemicals.

7.2. The following chemicals may be considered hazardous waste (*waste components shall remain segregated in separate containers*):

1. Flammable Solvents.
2. Chlorinated Solvents (or other halogenated solvents).
3. Corrosives.
4. Acids.
5. Bases.
6. Water Reactives.
7. Pyrophorics (materials that react with air).
8. Explosives (materials that may detonate).
9. Peroxides and chemicals that form peroxides.
10. Cyanides and Sulfides (will give off toxic gases when mixed with acids).
11. Toxics.

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12. Ignitable liquids (flash points < 140°F / 60°C).
13. Heavy Metals.
14. Carcinogens.
15. Mutagens.
16. Teratogens and fetotoxins.
17. Oil based paint materials (paints, inks, pigments, glazes, dyes).
18. Pesticides.
19. Solvents used for parts cleaning or degreasing.
20. Paint thinners and paint removing compounds.
21. Battery acid and other waste acids.
22. Phenol wastes.
23. Wastes containing metals such as lead, chromium, silver, or cadmium.
24. Mercury waste.
25. Adhesives, cements or lubricants.
26. Photographic film processing waste.
27. Ethidium Bromide.
28. Water treatment chemicals.
29. Residues of spill materials.
30. Used oil.
31. Pesticides.
32. Unknowns.
33. Any mixture that includes any of the above.

7.3. Employees shall refer to the Hazardous Waste Disposal Guide prior to disposal of any hazardous waste or containers.

## **8. Wastes Requiring Special Handling**

- 8.1. Empty toner cartridges shall be returned to the Deputy Director for recycling.
- 8.2. Empty compressed gas cylinders shall be returned to the company from which leased.

## **9. Hazardous Waste Handling**

- 9.1. Hazardous waste shall be handled in accordance with the hazardous waste management plan.
- 9.2. An appropriate container (bottle, jar, etc.) shall be used to collect hazardous waste. It shall be labeled in accordance with "The First Drop Rule" at the time the first drop of waste is added to the container. Hazardous waste containers shall not be open except when adding or transferring waste and the contents of the containers shall be compatible with the container. Hazardous waste containers shall be segregated based on the hazards of the waste.



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9.3. Hazardous waste shall be stored in designated storage areas which shall be equipped with secondary containment in the form of bins or a berm. A **DANGER** sign shall be posted at waste storage areas. The CHO shall inspect the hazardous waste storage.

#### 9.4. Labeling Containers

9.5. The employee who identifies hazardous waste shall be responsible for labeling the container storing the waste with a hazardous waste sticker or tag supplied by the CHO. If a sticker is too large for the container, a tag shall be attached with a rubber band or string. If a mistake is made on the sticker after it has been attached to the container, a one-line cross out with initial and date to modify and add the correction shall be used. A new sticker shall not be placed on top of an old sticker. The accumulation start date on the label shall not be changed. If a container already has a label that identifies content and hazards (e.g., a manufacturer's label), the sticker shall be placed on a location that does not cover that label, or a tag shall be used.

#### 9.6. Each label/sticker shall contain:

1. Contact Person – The name of the employee generating the waste shall be written legibly.
2. Laboratory Address – The Laboratory address shall be written legibly: CCBI, Crime Laboratory, 3301 Hammond Road, Raleigh, NC 27603.
3. EPA ID Number / EPA Hazardous Waste Number - The hazardous waste number associated with the hazardous waste shall be identified. This can be found in the hazardous waste disposal guide and at numerous locations online.
4. <http://www.epa.gov/epaoswer/hazwaste/data/form8700/8700-12.pdf>  
<http://www.des.umd.edu/hw/rest/manual/codes.html>
5. Accumulation Start Date - The date the chemical is deemed hazardous waste shall be identified.
6. Hazard Class - The hazards associated with the waste (according to OSHA Hazard Communication standards - flammable, corrosive, oxidizer, toxic, reactive, carcinogenic) shall be identified.
7. Chemical and % by Volume - The contents of the container shall be identified. The container may contain 100% of one chemical or it may contain a variety of chemicals (e.g., from a laboratory in which the jar was used to accumulate different but compatible compounds). Chemical formulas shall not be used to identify the contents; the chemical names shall be written.
8. Manifest Document Number - The number on the shipping manifest document shall be identified.

## 10. Waste Storage Areas

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10.1. The CHO shall designate waste storage areas in locations where waste is generated. The employee who operates the process generating the hazardous waste shall control the waste placed in the storage area.

10.2. Waste storage areas may be located in a fume hood, on a countertop, or on the floor (but not in an aisle); however, they shall not be placed in front of or behind doors or windows, blocking means of egress, or suspended from equipment. Aisle space shall be maintained to allow the unobstructed movement of emergency personnel and equipment into all areas where waste is stored. Adequate aisle space is determined based on the types of emergency equipment necessary to respond to fires, spills, releases, or explosions of waste materials on site. The following shall be accessible to the waste storage area:

- A device capable of summoning emergency assistance, e.g., a telephone.
- Water at adequate volume and pressure to supply water hose streams, or foam producing equipment, or automatic sprinklers, or water spray systems.
- An internal communications or alarm system capable of providing immediate emergency instruction to personnel who may be affected by an emergency incident.
- Portable fire extinguishers.
- Spill control equipment.

10.3. Waste storage areas shall be marked with a “**DANGER**” sign. Waste storage areas may be changed based on hazardous waste generation habits.

## **11. Container Management**

11.1. Containers used to collect hazardous waste shall be compatible with the substance collected. Glass or Nalgene jars are appropriate for most waste. Soda bottles, food containers, or other containers that could be confused with consumer products shall not be used.

11.2. The EPA list (Appendix V of 40 CFR Part 264/265) of potentially incompatible waste components and materials does not include every possible hazardous chemical reaction, but shall be used as a guide in packaging and storing these materials.

11.3. To avoid a hazardous chemical reaction, incompatible wastes shall not be placed in the same container. Hazardous waste shall not be placed in an unwashed container that previously held an incompatible material. Questions regarding compatibility shall be directed to the CHO.

11.4. Hazardous waste containers shall only be open when adding or removing waste. A closed container is one whose contents would not spill if the container were overturned. Depending upon the design of the container, it may be properly closed by firmly applying a screw-on cap, bung, drum ring, cork, etc.

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11.5. Containers and chemicals may expand or contract based on temperature; therefore, containers shall not be filled completely.

11.6. Transfer of hazardous waste is not recommended. If a transfer is necessary, adequate spill response equipment shall be available. Personal protective equipment (PPE) shall be worn and adequate transferring mechanisms shall be used.

## **12. HWMP Inspections**

12.1. The CHO shall inspect all waste storage areas monthly. An inspection shall be conducted regardless of the quantity of waste in the storage area.

## **13. Contingency Plan**

13.1. The CHO shall ensure that the laboratory maintains equipment on-site to facilitate spill cleanup and protect human health. A list of names and phone numbers (home and cell) of the CHO, Safety Officer, Forensic Quality Manager and Crime Laboratory Deputy Director shall be located in the waste containment area.

## **14. Pick-Up Schedule**

14.1. As a CESQG, the Laboratory is not subject to hazardous waste accumulation time limits provided the amounts accumulated do not exceed allowable limits. However, the Laboratory shall strive to maintain a healthful workplace environment by eliminating hazardous waste as frequently as possible.

14.2. The CHO shall coordinate the pick-up of hazardous waste by approved vendor.

## **15. Recordkeeping**

15.1. Hazardous waste documentation relating to shipment, regulatory reports, and land disposal records shall be maintained by the CHO according to the Record Retention Schedule as set forth by the North Carolina Department of Cultural Resources.

## **16. Waste Minimization**

16.1. Waste minimization techniques may include the following:

1. Maintaining a limited inventory of chemicals.
2. Maintaining an inventory of chemicals.
3. Reducing or eliminating the use of highly toxic chemicals.
4. Reusing or recycling spent solvents.

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5. Recovering metals from waste solvents.
6. Recycling office equipment.

**17. Hazardous Waste Management Procedures:**

17.1. It is the responsibility of each employee to properly dispose of all used and unused chemicals and solutions used in the examination of evidence.

17.2. Laboratory sink drains are not to be used for the disposal of hazardous materials and other chemical waste, except as specifically identified in this guide.

17.3. Every attempt should be made to separate hazardous waste from bio-hazardous waste. If this is not possible, it is possible to dispose of hazardous waste in biohazard waste containers.

17.4. Concentrated acids and bases cannot be flushed down the laboratory drain at any time unless previously neutralized. However, solutions which have a pH between 3 and 12, and do not contain any known hazardous or toxic materials or otherwise meet the definition of a characteristic waste, may be disposed of by flushing down the laboratory drain. Working solutions of acids may be neutralized by the addition of dilute base, such as sodium hydroxide, while working solutions of bases may be neutralized by the addition of dilute acid, such as hydrochloric acid. The pH of a solution may be determined using a calibrated pH meter or suitable litmus paper.

17.5. Generally, empty bottles or containers are not considered hazardous waste. These containers may be rinsed in the sink to remove any remaining residue, the labels removed or defaced, and the bottles disposed of in an appropriate glass disposal container. Containerized liquids will never be disposed of in the general laboratory trash.

17.6. Empty containers of acutely hazardous material, referred to as a P-listed material by the EPA, must be triple-rinsed and the rinsate collected and disposed of as hazardous waste. After the container has been triple rinsed and the labels removed or defaced, they may be disposed of directly into an appropriate trash container.

17.7. Empty bottles containing residues of flammable solvents, such as methanol, that are hazardous only on the basis of their flammable characteristic, may be rinsed out and the rinsate discharged down the laboratory drain. This disposal is permitted only if, during the rinsing process, the flammable is diluted with sufficient water to eliminate the flammable characteristic prior to disposal.

17.8. The contents of each waste container must be clearly identified. The waste container must be kept closed at all times, except when adding waste. Waste containers are to only be filled to  $\frac{3}{4}$  capacity to prevent the buildup of excessive vapor pressure and to allow adequate room for

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expansion. When the waste container is filled to  $\frac{3}{4}$  capacity, it is to be taken to the CCBI Crime Laboratory Hazardous waste storage area.

17.9. Appropriate personal protective equipment is to be used and skin contact is to be avoided when working with chemicals. Whenever possible, all processes are to be performed in a chemical fume hood.

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**Hazardous Waste Disposal Guide**

**Drug Chemistry Unit**

<b>MATERIALS</b>	<b>RCRA code</b>	<b>DISPOSAL PROCEDURE</b>
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**General Lab**

<b>Rinses of lab glassware</b>		
Methanol	F003 U154 D001	Do not dispose of this material down the laboratory drain. Dispose of unused material as a HW. Bottles with a residue may be allowed to dry in a hood and discarded in regular trash.
Acetone	F003 U002	

**Color tests**

<b>Marquis Reagent</b>			
Sulfuric Acid		D002	Neutralize excess to a pH greater than 3 and less than 12.5 prior to disposal down a laboratory drain. Empty containers maybe rinsed and discarded it in regular trash.
Formaldehyde solution (40%)		U122	Do not dispose of this material down the laboratory drain. Dispose of unused material as a HW. Rinse empty bottles 3 times, collecting the first two rinses and disposing of it as a HW.
	Marquis reagent	D002 U122 U182	Do not dispose of unused or expired solution down the laboratory drain - dispose of it as a HW. Spotwells with a residue of used material may be rinsed in the sink.

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**Duquenois-Levine Reagent**

acetaldehyde	U001	Do not dispose of this material down the laboratory drain. Dispose of unused material as a HW. Bottles with a residue may be allowed to dry in a hood and discarded in regular trash.
vanillin		Rinse empty containers and place in regular trash.
ethanol	D001	Do not dispose of this material down the laboratory drain. Dispose of unused material as a HW. Bottles with a residue may be allowed to dry in a hood and discarded in regular trash.
Duquenois reagent	U001 D001	Do not dispose of this material down the laboratory drain. Dispose of unused material as a HW. Bottles with a residue may be allowed to dry in a hood and discarded in regular trash.
chloroform	D022 U044	Do not dispose of this material down the laboratory drain. Dispose of unused material as a HW. Bottles with a residue may be allowed to dry in a hood and discarded in regular trash.
hydrochloric acid	D002	Neutralize excess to a pH greater than 3 and less than 12.5 prior to disposal down a laboratory drain. Empty containers maybe rinsed and discarded it in regular trash.
Duquenois-Levine test solution	D001 D002 D022 U044	Do not dispose of unused or expired material down the laboratory drain - dispose of it as a HW. Small culture tubes containing the solution may be placed directly in a HW container.

**Cobalt Thiocyanate Reagent**

cobalt thiocyanate	D003	Do not dispose of this material down the laboratory drain. Dispose of unused material as a HW. Rinse empty bottles 3 times, collecting the first two rinses and disposing of it as a HW.
Cobalt thiocyanate test solution	D003	Do not dispose of unused or expired solution down the laboratory drain - dispose of it as a HW. Spotwells with a residue of used material may be rinsed in the sink.

**Ferric Chloride Reagent**

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Ferric chloride		Rinse empty containers and place in regular trash.
Ferric chloride test solution		

<b>Dile-Koppanyi Reagent</b>		
Glacial acetic acid	D002	Neutralize excess to a pH greater than 3 and less than 12.5 prior to disposal down a laboratory drain. Empty containers maybe rinsed and discarded it in regular trash.
Cobalt acetate		Rinse empty containers and place in regular trash.
Methanol	F003 U154 D001	Do not dispose of this material down the laboratory drain. Dispose of unused material as a HW. Bottles with a residue may be allowed to dry in a hood and discarded in regular trash.
Koppanyi Reagent	F003 U154 D001	Do not dispose of this material down the laboratory drain. Dispose of unused material as a HW. Rinse empty bottles 3 times, collecting the first two rinses and disposing of it as a HW.
Koppanyi Paper		May be discarded in regular trash.
isopropylamine	D001	Do not dispose of this material down the laboratory drain. Dispose of unused material as a HW. Bottles with a residue may be allowed to dry in a hood and discarded in regular trash.
solution of 5% isopropylamine in methanol	F003 U154 D001	Do not dispose of this material down the laboratory drain. Dispose of unused material as a HW. Rinse empty bottles 3 times, collecting the first two rinses and disposing of it as a HW.

<b><i>p</i>-Dimethylaminobenzaldehyde Reagent (<i>p</i>DMAB)</b>		
<i>p</i> -Dimethylaminobenzaldehyde		Rinse empty containers and place in regular trash.
Methanol	F003 U154 D001	Do not dispose of this material down the laboratory drain. Dispose of unused material as a HW. Bottles with a residue may be allowed to dry in a hood and discarded in regular trash.
PDMA B Reagent	F003 U154 D001	Do not dispose of this material down the laboratory drain. Dispose of unused material as a HW. Bottles with a residue may be allowed to dry in a hood and discarded in regular trash.
PDMA B paper		May be discarded in regular trash.



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Hydrochloric acid	D002	Neutralize excess to a pH greater than 3 and less than 12.5 prior to disposal down a laboratory drain. Empty containers maybe rinsed and discarded it in regular trash.
PDMAB paper w/hydrochloric acid		May be discarded in regular trash after it has dried in a hood.

<b>Froehde's Reagent</b>		
Sulfuric Acid (concentrated)	D002	Neutralize excess to a pH greater than 3 and less than 12.5 prior to disposal down a laboratory drain. Empty containers maybe rinsed and discarded it in regular trash.
Sodium molybdate		Rinse empty containers and place in regular trash.
Froehde's Reagent	D002	Neutralize excess to a pH greater than 3 and less than 12.5 prior to disposal down a laboratory drain. Empty containers maybe rinsed and discarded it in regular trash.

<b>Mecke's Reagent</b>		
Sulfuric Acid (concentrated)	D002	Neutralize excess to a pH greater than 3 and less than 12.5 prior to disposal down a laboratory drain. Empty containers maybe rinsed and discarded it in regular trash.
Selenious Acid	U204	Do not dispose of this material down the laboratory drain. Dispose of unused material as a HW. Rinse empty bottles 3 times, collecting the first two rinses and disposing of it as a HW.
Mecke's Reagent	D002 U204	Do not dispose of this material down the laboratory drain. Dispose of unused material as a HW. Rinse empty bottles 3 times, collecting the first two rinses and disposing of it as a HW.

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<b>Zwikker Reagent</b>			
Cupric Sulfate			Rinse empty containers and place in regular trash.
	Cupric Sulfate in water solution		Rinse empty containers and place in regular trash.
Pyridine		D038 F005 U196	Do not dispose of this material down the laboratory drain. Dispose of unused material as a HW. Bottles with a residue may be allowed to dry in a hood and discarded in regular trash.
Chloroform		D022 U044	Do not dispose of this material down the laboratory drain. Dispose of unused material as a HW. Bottles with a residue may be allowed to dry in a hood and discarded in regular trash.
	pyridine in chloroform solution	D038 F005 U196 D022 U044	Do not dispose of this material down the laboratory drain. Dispose of unused material as a HW. Bottles with a residue may be allowed to dry in a hood and discarded in regular trash.
	Zwikker Reagent	D038 F005 U196 D022 U044	Do not dispose of unused or expired material down the laboratory drain - dispose of it as a HW. Small culture tubes containing the solution may be placed directly in a HW container.

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<b>Simon's Test (Modified Sodium Nitroprusside)</b>			
Sodium nitroprusside		D003	Do not dispose of this material down the laboratory drain. Dispose of unused material as a HW. Rinse empty bottles 3 times, collecting the first two rinses and disposing of it as a HW.
	Sodium nitroprusside in water solution		
Acetaldehyde		U001	Do not dispose of this material down the laboratory drain. Dispose of unused material as a HW. Bottles with a residue may be allowed to dry in a hood and discarded in regular trash.
	Mixture of sodium nitroprusside solution w/ acetaldehyde	D003 U001	Do not dispose of this material down the laboratory drain. Dispose of unused material as a HW. Rinse empty bottles 3 times, collecting the first two rinses and disposing of it as a HW.
Sodium carbonate			Rinse empty containers and place in regular trash.
	sodium carbonate in water solution		Rinse empty containers and place in regular trash.
	Simon's Test (Modified Sodium Nitroprusside) Reagent #2	D003 U001	Do not dispose of this material down the laboratory drain. Dispose of unused material as a HW. Rinse empty bottles 3 times, collecting the first two rinses and disposing of it as a HW.

<b>Cobalt Nitrate Reagent</b>			
Cobalt Nitrate			Rinse empty containers and place in regular trash.
	Cobalt nitrate in water		

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### **Microscopy Reagents**

#### **5% Mercuric Chloride and 0.05 N Hydrochloric Acid Solution**

Mercuric chloride	D009 U151	Do not dispose of this material down the laboratory drain. Dispose of unused material as a HW. Rinse empty bottles 3 times, collecting the first two rinses and disposing of it as a HW.
hydrochloric acid	D002	Neutralize excess to a pH greater than 3 and less than 12.5 prior to disposal down a laboratory drain. Empty containers maybe rinsed and discarded it in regular trash.
Mercuric chloride (with or without hydrochloric acid) test waste	D009 U151	Do not dispose of this material down the laboratory drain or trash. Dispose of unused material as a HW. Microscope slides with a residue of waste should be placed directly in a hazardous waste container.

#### **2 % Gold Chloride in 20 % Acetic Acid**

Gold Chloride		Rinse empty containers and place in regular trash.
Acetic Acid	D002	Neutralize excess to a pH greater than 3 and less than 12.5 prior to disposal down a laboratory drain. Empty containers maybe rinsed and discarded in regular trash.
Gold chloride in acetic acid solution (with or without hydrochloric acid) and test waste	D002	

#### **Microscopic Examination of Hashish Using Chloroform**

Chloroform	D022 U044	Do not dispose of this material down the laboratory drain. Dispose of unused material as a HW. Slides with a residue may be allowed to dry in a hood and discarded in regular trash.
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### Extractions

<b>Acids (all concentrations, unless otherwise listed)</b>		
hydrochloric acid , sulfuric acid, acetic acid.	D002	Neutralize excess to a pH greater than 3 and less than 12.5 prior to disposal down a laboratory drain. Empty containers maybe rinsed and discarded it in regular trash.

<b>Bases (all concentrations, unless otherwise listed)</b>		
ammonium hydroxide, sodium hydroxide	D002	Neutralize excess to a pH greater than 3 and less than 12.5 prior to disposal down a laboratory drain. Empty containers maybe rinsed and discarded it in regular trash.

<b>Sodium Bicarbonate</b>		
sodium bicarbonate		Rinse empty containers and place in regular trash.
Sodium bicarbonate solutions, aq.		

<b>Chlorinated Solvents</b>		
methylene chloride	F002	Do not dispose of this material down the laboratory drain. Dispose of used or unused material as a HW. Bottles with a residue may be allowed to dry in a hood and discarded in regular trash.
chloroform	D022 U044	

<b>Flammable Solvents</b>		
Any mixture or single component of the following:		
methanol	F003 U154 D001	Do not dispose of this material down the laboratory drain. Dispose of used or unused material as a HW. Bottles with a residue may be allowed to dry in a hood and discarded in regular trash.
ethanol	D001	
acetone	F003 U002 D001	
hexane	D001	
heptane	D001	

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	ether	F003 U117 D001
	cyclohexane	U056 D001
	petroleum ether	D001
	isopropanol	D001
	ethyl acetate	U112 F003 D001
	any liquid having a flash point below 60 degrees C.	

**Flammable Solvents Mixed with Chlorinated Solvents**

methylene chloride and/or chloroform	*	Do not dispose of this material down the laboratory drain. Dispose of used or unused material as a HW. Bottles with a residue may be allowed to dry in a hood and discarded in regular trash.
Any mixture or single component of methanol, ethanol, acetone, hexane, heptane, diethyl ether, cyclohexane, petroleum ether, isopropanol, or other liquid having a flash point below 60 degrees C, which is mixed with chloroform or methylene chloride.	*	Do not dispose of this material down the laboratory drain. Dispose of used or unused material as a HW. Bottles with a residue may be allowed to dry in a hood and discarded in regular trash.

**Ammoniated, Flammable Solvents**

Ammonium Hydroxide	D002	Neutralize excess to a pH greater than 3 and less than 12.5 prior to disposal down a laboratory drain. Empty containers maybe rinsed and discarded it in regular trash.
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	Any mixture or single component of methanol, ethanol, acetone, hexane, heptane, diethyl ether, cyclohexane, petroleum ether, isopropanol, or other liquid having a flash point below 60 degrees C, which is mixed with Ammonium Hydroxide.	*	Do not dispose of this material down the laboratory drain. Dispose of unused material as a HW. <b>Do NOT mix acids and bases.</b> Bottles with a residue may be allowed to dry in a hood and discarded in regular trash.
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**Ammoniated, Flammable Solvents Mixed with Chlorinated Solvents**

Ammonium Hydroxide	D002	Neutralize excess to a pH greater than 3 and less than 12.5 prior to disposal down a laboratory drain. Empty containers maybe rinsed and discarded it in regular trash.
methylene chloride and/or chloroform	*	Do not dispose of this material down the laboratory drain. Dispose of used or unused material as a HW. Bottles with a residue may be allowed to dry in a hood and discarded in regular trash.
Any mixture or single component of methanol, ethanol, acetone, hexane, heptane, diethyl ether, cyclohexane, petroleum ether, isopropanol, or other liquid having a flash point below 60 degrees C, which is mixed with Ammonium Hydroxide and chloroform or methylene chloride.	*	Do not dispose of this material down the laboratory drain. Dispose of unused material as a HW. <b>Do NOT mix acids and bases.</b> Bottles with a residue may be allowed to dry in a hood and discarded in regular trash.

**Acidified, Flammable Solvents**

hydrochloric acid	D002	Neutralize excess to a pH greater than 3 and less than 12.5 prior to disposal down a laboratory drain. Empty containers maybe rinsed and discarded it in regular trash.
Any mixture or single component of methanol, ethanol, acetone, hexane, heptane, diethyl ether, cyclohexane, petroleum ether, isopropanol, or other liquid having a flash point below 60 degrees C, which is mixed with hydrochloric acid.	*	Do not dispose of this material down the laboratory drain. Dispose of unused material as a HW. <b>Do NOT mix acids and bases.</b> Bottles with a residue may be allowed to dry in a hood and discarded in regular trash.



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**GCMS**

<b>Drug Chemistry Gas Chromatograph/Mass Spectrometer</b>			
methanol or ethyl acetate		F003 D001	Do not dispose of this material down the laboratory drain. Dispose of unused material as a HW. Bottles with a residue may be allowed to dry in a hood and discarded in regular trash.
chloroform		D022 U044	
pump oil			Empty bottles may be disposed of in the trash. Do not dispose of unused oil down the laboratory drain or in the trash. Recycle or dispose of as a used oil.
	used pump oil		
pFTBA		F001	Do not dispose of this material down the laboratory drain. Dispose of unused material as a HW. Bottles with a residue may be allowed to dry in a hood and discarded in regular trash.
	case samples or drug standards dissolved in methanol, chloroform, or ethylacetate	*	Do not dispose of this material down the laboratory drain or trash. Dispose of unused material as a HW.

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### DWI Blood Chemistry Unit

<b>MATERIALS</b>	<b>RCRA code</b>	<b>DISPOSAL PROCEDURE</b>
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#### General Lab

<b>Rinses of lab glassware</b>		
Methanol	F003 U154 D001	Do not dispose of this material down the laboratory drain. Dispose of unused material as a HW. Bottles with a residue may be allowed to dry in a hood and discarded in regular trash.
Acetone	F003 U002	

<b>Alcohol Concentration</b>			
ethanol		D001	Do not dispose of this material down the laboratory drain. Dispose of unused material as a HW. Containers with a residue may be allowed to dry in a hood and discarded in regular trash.
methanol		F003 U154 D001	
isopropanol		D001	
acetone		U002 F003 D001	
	BAC stock/working calibrator/verifier solutions (in-house and purchased)	D001 F003 U002	
n-propanol		D001	
	0.05% n-propanol (aq.)		May be disposed of down the laboratory drain.
	Blood or urine prepared with 0.05% n-propanol		Dispose of as a biological waste.

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**Extraction Procedures for Acidic/Neutral and Basic Drugs Using United Chemical Technologies Clean Screen Extraction Columns**

Acetic acid	D002	Neutralize excess to a pH greater than 3 and less than 12.5 prior to disposal down a laboratory drain. Empty containers maybe rinsed and discarded it in regular trash.
1.0 M acetic acid		
methylene chloride	F002	Do not dispose of this material down the laboratory drain. Dispose of used and unused material as a HW. Bottles with a residue may be allowed to dry in a hood and discarded in regular trash.
isopropanol	D001	
Ammonium hydroxide	D002	Neutralize excess to a pH greater than 3 and less than 12.5 prior to disposal down a laboratory drain. Empty containers maybe rinsed and discarded it in regular trash.
Methylene chloride (MeCl) : Isopropyl alcohol (4:1)	F002 D001	Do not dispose of this material down the laboratory drain. Dispose of used and unused material as a HW. Bottles with a residue may be allowed to dry in a hood and discarded in regular trash.
Methylene chloride (MeCl) : Isopropyl alcohol (4:1) with 2% Ammonium Hydroxide	F002 D001	Do not dispose of this material down the laboratory drain. Dispose of unused material as a HW. <b>Do NOT mix acids and bases.</b> Bottles with a residue may be allowed to dry in a hood and discarded in regular trash.
sodium phosphate, monobasic or dibasic		Rinse empty containers and place in regular trash.
pH 6 phosphate buffer		May be disposed of down the laboratory drain.
Methanol	F003 U154 D001	Do not dispose of this material down the laboratory drain. Dispose of unused material as a HW. Bottles with a residue may be allowed to dry in a hood and discarded in regular trash.
drug standards in methanol (internal standard, calibration and verification standards)	F003 U154 D001	Do not dispose of this material down the laboratory drain. Dispose of unused material and methanol or acetone bottle rinses as a HW. Bottles with a residue may be allowed to dry in a hood and washed in a sink or discarded in regular trash.
ethyl acetate	U112 F003 D001	Do not dispose of this material down the laboratory drain. Dispose of unused material as a HW. Bottles with a residue may be allowed to dry in a hood and

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BSTFA with 1% TMCS (N,O-bis(trimethylsilyl)trifluoroacetamine with 1% trimethylchlorosilane)	D001	discarded in regular trash.
case samples or drug standards dissolved in ethyl acetate or BSTFA with 1% TMCS (N,O-bis(trimethylsilyl)trifluoroacetamine with 1% trimethylchlorosilane)	*	Do not dispose of this material down the laboratory drain or trash. Dispose of unused material as a HW.
vials that have dried during analysis		May be placed in the general trash.

<b>pH meter</b>		
pH 4 buffer solution		May be disposed of down the laboratory drain.
pH 7 buffer solution		

<b>ELISA screen test</b>		
Methanol	F003 U154 D001	Do not dispose of this material down the laboratory drain. Dispose of unused material as a HW. Bottles with a residue may be allowed to dry in a hood and discarded in regular trash.
drug standards in methanol (calibration and verification standards)	F003 U154 D001	Do not dispose of this material down the laboratory drain. Dispose of unused material and methanol or acetone bottle rinses as a HW. Bottles with a residue may be allowed to dry in a hood and washed in a sink or discarded in regular trash.
drug standards in biological matrix (calibration and verification standards)		Dispose of as a biological waste.
enzyme conjugate		May be disposed of down the laboratory drain.
plate wash waste		
TMB substrate		
stop reagent	D002	Neutralize excess to a pH greater than 3 and less than 12.5 prior to disposal down a laboratory drain. Empty containers maybe rinsed and discarded it in regular trash.
completed ELISA assay		

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**DWI Blood Chemistry Gas Chromatographs / Mass Spectrometers**

methanol	F003 U154 D001	Do not dispose of this material down the laboratory drain. Dispose of unused material as a HW. Containers with a residue may be allowed to dry in a hood and discarded in regular trash.
ethyl acetate	F003 D001	
BSTFA with 1% TMCS (N,O-bis(trimethylsilyl)trifluoroacetamine with 1% trimethylchlorosilane)	D001	
case samples or drug standards dissolved in BSTFA with 1% TMCS (N,O-bis (trimethylsilyl) trifluoroacetamine with 1% trimethylchlorosilane)	D001	Do not dispose of this material down the laboratory drain or trash. Dispose of unused material as a HW.
vials that have dried during analysis		May be placed in the general trash.
pump oil		Empty bottles may be disposed of in the trash. Do not dispose of used or unused oil down the laboratory drain or in the trash. Recycle or dispose of as a used oil.
used pump oil		
pFTBA	F001	Do not dispose of this material down the laboratory drain. Dispose of unused material as a HW. Bottles with a residue may be allowed to dry in a hood and discarded in regular trash.

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**THC and THC-COOH Styre Screen Extraction Procedure**

methanol	F003 U154 D001	Do not dispose of this material down the laboratory drain. Dispose of unused material as a HW. Containers with a residue may be allowed to dry in a hood and discarded in regular trash.
drug/methanol solutions (internal standard, calibration and verification solutions)	F003 U154 D001	Do not dispose of this material down the laboratory drain. Dispose of unused material and methanol or acetone bottle rinses as a HW. Bottles with a residue may be allowed to dry in a hood and washed in a sink or discarded in regular trash.
drug standards in biological matrix (calibration and verification standards)		Dispose of as a biological waste.
acetonitrile	U003 D001	Do not dispose of this material down the laboratory drain. Dispose of unused material as a HW. Containers with a residue may be allowed to dry in a hood and discarded in regular trash.
Acetonitrile/blood extract	U003 D001	Do not dispose of this material down the laboratory drain. Dispose of unused material as a HW. Bottles with a residue may be allowed to dry in a hood and discarded in regular trash.
Ammonium hydroxide	D002	Neutralize excess to a pH greater than 3 and less than 12.5 prior to disposal down a laboratory drain. Empty containers maybe rinsed and discarded it in regular trash.
water/acetonitrile/ammonium hydroxide column rinse	D001 D002 U003	Do not dispose of this material down the laboratory drain. Dispose of unused material as a HW. Bottles with a residue may be allowed to dry in a hood and discarded in regular trash.
Hexane	D001	
ethyl acetate	F003 D001	
glacial acetic acid	D002	Neutralize excess to a pH greater than 3 and less than 12.5 prior to disposal down a laboratory drain. Empty containers maybe rinsed and discarded it in regular trash.

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BSTFA with 1% TMCS (N,O-bis(trimethylsilyl)trifluoroacetamine with 1% trimethylchlorosilane)		D001	Do not dispose of this material down the laboratory drain. Dispose of unused material as a HW. Bottles with a residue may be allowed to dry in a hood and discarded in regular trash.
	case samples or drug standards dissolved in BSTFA with 1% TMCS (N,O-bis (trimethylsilyl) trifluoroacetamine with 1% trimethylchlorosilane)	D001	Do not dispose of this material down the laboratory drain or trash. Dispose of unused material as a HW.
	vials that have dried during analysis		May be placed in the general trash.

## References

Title 40 of the Code of Federal Regulations, Parts 260-268, 270, 273, 279.

Environmental Protection Agency, Hazardous Waste Regulation, 40 CFR 260

[http://www.access.gpo.gov/nara/cfr/cfrhtml\\_00/Title\\_40/40cfr260\\_00.html](http://www.access.gpo.gov/nara/cfr/cfrhtml_00/Title_40/40cfr260_00.html)

EPA Compatibility Table 40 CFR 264, Appendix V

[http://www.access.gpo.gov/nara/cfr/cfrhtml\\_00/Title\\_40/40cfr264\\_00.html](http://www.access.gpo.gov/nara/cfr/cfrhtml_00/Title_40/40cfr264_00.html)

OSHA information on carcinogens:

<http://www.osha-slc.gov/SLTC/carcinogens/index.html>



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## **CHAPTER 10 – INSTRUMENT AND EQUIPMENT HAZARDS**

1. Essential to the operation of any laboratory device are the following fundamental safety guidelines:

1. Personnel should only be allowed to use equipment after the supervisor or Technical Leader has determined that the employee is familiar with the equipment, its operation, safety features, and inherent hazards.
2. The unit supervisor, Technical Leader, or Health and Safety Officer should provide employees with operational and safety lessons regarding the use of laboratory-provided equipment.
3. No alteration of manufacturer's safety features should be allowed.
4. All maintenance should be performed by trained and qualified personnel.

### **2. General Purpose Laboratory Equipment**

2.1. In addition to the safety recommendations in other sections of these guidelines, the following devices warrant special consideration: ovens, hot plates, vortex mixers, centrifuges, and refrigerators.

2.2. Ovens should not be used to heat containers of flammable fluids.

2.3. Hot plates should be kept at a minimum heat and turned off after use.

2.4. Cover tubes when using a vortex mixer.

2.5. Centrifuges should be used with the lid closed while the unit is in operation. Symmetrically balanced loads supported by swing-out cups and safety carriers must not exceed maximum speed ratings. Any tubes used should be inspected prior to use, and in the event of a spill, the centrifuge must be immediately cleaned.

2.6. Refrigerators should be rated for laboratory use.

### **3. Tools and Repairs**

3.1. Emphasis should be placed upon proper eye and hand protection when working with tools.

### **4. Mechanical Hazards of Firearms Handling**

4.1. General Safety Procedures:

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4.1.1. All firearms being submitted or handled should be given a preliminary safety inspection to ensure that the weapon is unloaded or in a safe condition.

4.1.2. No firearm will be loaded or unloaded in the laboratory.

4.1.3. Firearms, cartridges, cartridge cases, bullets, and any object received containing biological matter should be handled using latex gloves.

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## CHAPTER 11 – EMERGENCY ACTION PLAN

### 1. Administration

CCBI will adhere to the Wake County Detention Center's Emergency Action Plan ([Emergency Action Plan](#).)

### 2. Emergency Fire Evacuation

2.1. Primary and secondary emergency evacuation routes have been designed and established throughout the entire Wake County Detention Center. These routes are clearly and prominently displayed in hallways and office areas for the benefit and safety of all persons conducting business in the building.

2.2. It is the duty and responsibility of each CCBI employee to locate and familiarize him/herself with the routes, especially those closest to his/her workstation. Specific instructions for each section and floor are outlined in this SOP.

2.3. Upon official notification that an emergency evacuation situation exists, the person/employee receiving notification should immediately contact a Supervisor, using the following chain of command:

Primary: CCBI Director

Secondary: CCBI Deputy Directors

Third: On-duty Investigations Supervisor  
Administrative Services Coordinator

2.4. The Supervisor will be responsible to immediately notify all CCBI employees and all visitors/general public that are in the office, utilizing other available Supervisors to assist in the notification.

2.5. All CCBI personnel will comply with established evacuation routes and shall assist and direct visitors/general public in proceeding to the proper routes.

### 3. Investigations

3.1. Non-Detention staff and the public will evacuate into the parking garage on the street level when an emergency requires evacuation of the facility.

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1. The primary exit route when entering the hall near the labs, turn right, travel to end of hallway and turn left into Stairwell 9. **Note: Use Stairwell 9 to exit the Building ONLY in an emergency.**
2. If entering the hall near the Blood Alcohol lab, turn right, travel down the hall, turn right down corridor in front of labs, and then turn left into Stairwell 9.
3. The secondary exit route is through the Courtyard out the Staff Entrance.
4. The severe weather shelter is the hallway in front of the Labs.

#### **4. Evidence Room/Receiving**

4.1. Non-Detention staff and the public will evacuate into the parking garage on the street level when an emergency requires evacuation of the facility.

1. The primary exit route is out the Exit Door in Evidence Receiving.
2. The secondary exit route is down the corridor in front of the labs and exit out Stairwell 9. **Note: Use Stairwell 9 to exit the Building ONLY in an emergency.**
3. The severe weather shelter is in the corridor in front of Drug Evidence Storage or the hallway in front of the labs.

#### **5. CCBI DWI Blood Alcohol Laboratory and Drug Chemistry Laboratory**

5.1. Non-Detention staff and the public will evacuate into the parking garage on the street level when an emergency requires evacuation of the facility.

1. The primary exit route when entering the hall: turn left (DWI Blood Alcohol Laboratory) or right (Drug Chemistry), travel to next corridor, turn right and follow hallway to end, turn left into Stairwell 9, and exit near parking deck. **Note: Use Stairwell 9 to exit the Building ONLY in an emergency.**
2. The secondary exit route is through the Courtyard and exit out front Staff Entrance.
3. The severe weather shelter is the hallway in front of the Blood Alcohol lab.

#### **6. DWI Blood Drug Laboratory/Wet Laboratory/Dry Laboratory/Trace Evidence Laboratory**

6.1. Non-Detention staff and the public will evacuate into the parking garage on the street level when an emergency requires evacuation of the facility.

1. The primary exit route when entering the hall turn left, travel to end of hallway and turn left into Stairwell 9. **Note: Use Stairwell 9 to exit the Building ONLY in an emergency.**
2. The secondary exit route is through the Vehicle Examination room.
3. The severe weather shelter is the hallway in front of the Labs.

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## 7. Vehicle Examination/Garage

7.1. Non-Detention staff and the public will evacuate into the parking garage on the street level when an emergency requires evacuation of the facility.

1. The primary exit route will be out one of the two exit doors.
2. The secondary exit route will be through Stairwell 9 near the parking deck. **Note: Use Stairwell 9 to exit the Building ONLY in an emergency.**
3. The severe weather shelter the hallway in front of the labs.

## 8. Crime Laboratory Offices, Forensic Photo Laboratory, Footwear Laboratory, Computer Forensics Laboratory, AFIS/SICAR Room

8.1. Non-Detention staff and the public will evacuate into the parking garage on the street level when an emergency requires evacuation of the facility.

1. The primary exit route is down the hallway toward parking deck out and down Stairwell 9.
2. The secondary exit route is past the Public Waiting Area down the Lobby Stairs.
3. The severe weather shelter is down Stairwell 9, into the Staff Entrance corridor.

## 9. Break room C2364/Conference Room 2363/Open Break Area

9.1. Non-Detention staff and the public will evacuate into the parking garage on the street level when an emergency requires evacuation of the facility.

1. The primary exit route is down the hall past the Crime Lab out Stairwell 9.
2. The secondary exit route is past the Public Waiting Area down the Lobby Stairs.
3. The severe weather shelter is down Stairwell 9, into the Staff Entrance corridor.

## 10. Administration

10.1. Non-Detention staff and the public will evacuate into the parking garage on the street level when an emergency requires evacuation of the facility.

1. The primary exit route is past the Public Waiting Area down the Lobby Stairs.
2. The secondary exit route is Stairwell 1 beside the elevator in front of Medical.
3. The severe weather shelter is down the Lobby Stairs into Level 1 in front of the Elevators.

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