
S.O.P. #: TACTICAL OPERATIONS MANUAL #02

SUBJECT: HAZARDOUS MATERIALS UNIT 114

DIVISION: EMERGENCY OPERATIONS

Objective: To provide a vehicle, equipment and trained personnel to respond to hazardous incidents involving chemicals, hydrocarbons (flammable liquids/gases), radiological, etiological agents (related to the cause of disease) within Baltimore County and neighboring jurisdictions as requested.

Section 1: Organization:

- A. The Hazardous Materials Response Team will be comprised of those members presently assigned to Station 14, and any other personnel that may be assigned from time-to-time by the Division Chiefs.
- B. The Division Chief assigned to Hazardous Materials Unit #114 will be the administrator of the program and will be designated as Hazardous Materials #1 (Haz-Mat 1).
- C. In the absence of the Division Chief, Haz-Mat 2, 3 or Haz-Mat 5 will assume the responsibilities as the program administrator.
- D. On all incidents, the Division Chief and Haz-Mat 5 will be notified by pager or telephone, as soon as possible, by Fire Dispatch and will respond at their discretion.
- E. On every incident that requires the use of Level A or Level B chemical protective clothing, Medic 14 will be dispatched at the discretion of the Haz-Mat Commander.

Section 2: General Requirements

- A. Hazardous Materials Unit #114 (Haz-Mat 114) will be housed at the Brooklandville Station #14.
- B. Vehicle Maintenance and upkeep will be the responsibility of station members and Fire Maintenance.
- C. A ledger will be maintained at Station 14 and entries will be made by the Officer-in-Charge upon termination of each incident. The necessary entries for this journal are as follows:
 - 1. Basic situation upon arrival and material(s) involved.
 - 2. Materials used (see Appendix A for absorbent disposal)
 - 3. Time-frame involved (time spent on incident)
 - 4. Any injuries (Fire Department/civilian)
 - 5. Damage to Fire Department Equipment
 - 6. Chemical exposure to Fire Department Members (type, time & name)
 - 7. Chemical protective clothing used (type, time, material, and personnel's name)

8. Other unusual/pertinent information
- D. The ledger will also contain the following non-response information:
1. Any suit use (training or backup)
 2. Test records for Chemical protective clothing
 3. Calibration records
 4. New equipment received
 5. Training details
 6. Absorbent details
 7. Foam, absorbent, and boom inventory
- E. Anytime equipment/materials are expended, they will be replaced, immediately, or the Division Chief assigned to Haz-Mat 114 will be notified of depleted materials.
- F. Each time Haz-Mat 114 is utilized, the proper UFIRS report will be completed and submitted. All reports shall be filled out as completely as possible, especially when personnel are exposed to hazardous materials. Said reports will also contain any equipment or materials used for that particular incident.
- G. A first report of injury is required for all Fire Department personnel who are injured or exposed to any Hazardous Material.
- H. There shall be a driver and a Lieutenant assigned to Haz-Mat 114. This is in addition to the crew assigned to Engine 14.

Section 3: Responses

- A. Automatic Dispatch.
1. Any incident involving vehicles or fixed installation of chemicals, pesticides, or hydrocarbons (flammable liquids/gases) in excess of 100 gallons or 100 pounds.
 2. Any incident involving air-craft crash or train derailment.
 3. Spills in tank farms or other fixed storage facilities in excess of 100 gallons.
 4. Propane and/or L.P.G. fixed installation or other facilities in excess of 100 gallons.
 5. Whenever Haz-Mat 114 is dispatched or requested, the Baltimore County Department of Environmental Protection and Resource Management (DEPRM) will be notified by Fire Dispatch.
 6. Spills of hazardous materials, be it solids, liquids, or gases, in excess of 100 gallons.

B. Dispatch Upon Request

1. Any exposure fire where large quantities of Hazardous materials are subject to exposure from fire or water damage (500 gallons or 500 pounds).
2. Spills of hazardous materials or chemicals of an unknown nature, involving either liquid, powder, granules, solids, or gases.
3. Any incident requiring foam or absorbent in large quantities in excess of 6 cans foam, or 6 bags absorbent.
4. Respond at the request of the Incident Commander, who feels that Haz-Mat 114 can be of assistance in any practical way.

Section 4: Operating Procedures for Haz-Mat 114

A. Organization

1. The ranking officer in charge at the incident shall consult with the officer-in-charge of Haz-Mat 114 in order to determine an appropriate strategy by which the incident may be brought to a satisfactory conclusion.
2. The Incident command system will be used on all incidents.
3. A Safety Officer will be appointed by the Incident Commander.
4. An incident site log shall be maintained for future reference and shall contain:
 - a. location
 - b. date
 - c. name, description, source, quantity, and cause of release
 - d. weather information
 - e. names and job assignments for all personnel involved
 - f. injuries to personnel and civilians
 - g. corrective action taken
 - h. chronological recording of events
 - i. entry and exit times of entry personnel
 - j. toxic level(s) encountered by entry personnel
 - k. listing of resources utilized
5. Sectorization

- a. Hot Sector - Location of leak or spill and close surrounding areas as determined by the Incident Commander and the officer-in-charge of Haz-Mat 114.
- b. Warm Sector - Closest safe distance from the leak or spill where no contamination will take place. Haz-Mat 114, the decon area, and the forward command sector will be located in this area. Only essential personnel and equipment needed to control the incident, operate decon and participate in the forward command sector will be allowed access to this area.
- c. Cold Sector - Safe area for staging of equipment and personnel, command post, news media, etc. The public will be denied entry into this area.
- d. Hot, Warm, and Cold sectors will be designated by red, yellow and green traffic cones
- e. Entry into Hot, Warm, and Cold sectors will be controlled by Sector Commanders at each entry point into the sector.
 - 1) Sector Commanders will be assigned at the time of the incident.

6. Decontamination

- a. The decontamination sector shall be located in the warm sector of the incident. A decontamination team will be assigned by the Haz-Mat incident commander. Decontamination will be set up and operational prior to any entry into the hot sector. The decontamination area will be set up in the following manner;
 - Station 1. Entry team enters the decon area and mechanically removes contaminants from victims. Tools are dropped in the tool drop area. Entry team is in SCBA and CPC. Proceed to Station 2.
 - Station 2. Gross Decontamination: Victims and entry team are showered. Victim(s) clothing shall be removed prior to washing the victim(s). There shall be one wash pool set up in this area. Move to station 3.
 - Station 3. Pools 2 and 3 shall be in this area. The decon team shall assist the entry team with scrubbing and showering.
 - Station 4. Protective clothing removal: Entry team removes protective clothing; clothing is isolated and labeled for later disposal. Clothing is placed on the contaminated side. Proceed to station 5.
 - Station 5. SCBA removal: Entry team removes and isolates their SCBA. If re-entry is necessary, personnel don new SCBA from non-contaminated side.
 - Station 6. Personnel clothing removal: all clothing and personal items are removed. All clothing and personal items are isolated in plastic bags for disposal. Proceed to station 7.
 - Station 7. Body washing: Full body washing is performed using soft scrub brushes or sponges and soap or mild detergent. Cleaning tools are bagged for disposal. There shall be 1 pool located in this area to perform the body wash. Proceed to station 8.

- Station 8. Dry off: Towels and sheets are used to dry off. Entry team and victims are provided with clean clothes. Towels and sheets are bagged for later disposal. Proceed to station 9.
- Station 9. Medical assessment: Rapid patient assessment is conducted on the victim(s). Post medical evaluations are conducted on the entry, backup and decon team members. Proceed to station 10.
- Station 10. Transport: Transfer patient and other necessary personnel to hospital for medical attention or recovery areas for rest and observation.

- b. At least 3 reference sources shall be used to identify the health, reactivity and flammability information so that proper decontamination procedures may be in place.
- c. There shall be two sides to the decon area, one a clean area the other a contaminated area. "Clean" personnel shall not move into the contaminated area. "Contaminated persons" shall not move into the clean area. Personnel shall not move back and forth from higher to lower contaminated areas without passing through the decontamination procedure. Decontamination personnel must pass through the decontamination process to exit the decon area.
- d. All victims who are contaminated must pass through the decon area, so as not to contaminate the entire health care system.
- e. The 10 step decontamination process may be combined in several areas, but each step must be completed.
- f. Pools, water, and other items that are to be disposed of will be the responsibility of a licensed private cleanup company. Haz-Mat 1 will be advised of pools being used and have them replaced.
- g. All entry, backup, and decon personnel will report for medical evaluation for both pre and post-incident medical evaluation.
- h. Variations of the above procedure may be necessary due to many factors; however, a final decontamination plan must be in place prior to any entry into the hot sector.
- i. The decontamination team will be suited to one level below the entry team.

Entry Team	Decon Team
Level A	Level B
Level B	Full Turnout Gear
Full Turnout Gear	Full Turnout Gear

- 1) Level A Suit consists of:
 - a) Totally Encapsulating Chemical protective suit
 - b) One (1) hour SCBA
 - c) Chemical resistant gloves (outer)
 - d) Gloves (inner)

- e) Chemical resistant boots
- f) Radio Communications
- 2) Level B Suit consists of:
 - a) Tyvek/Saranex full suit or coveralls or Chemical splash protection.
 - b) One (1) hour SCBA, except decon team may wear thirty (30) minute SCBA.
 - c) Chemical resistant gloves (outer)
 - d) Gloves (inner)
 - e) Chemical resistant boots
 - f) Radio communications for entry and backup; the decon team must have one (1) person with radio communications
- 3) Full Turnout Clothing consists of:
 - a) Helmet
 - b) Nomex or PBI hood
 - c) Turnout coat and pants
 - d) boots
 - e) gloves
 - f) SCBA
 - g) Tape, at the discretion of the Haz-Mat Officer.

7. Medical Evaluation

- a. A yearly in-depth medical physical will be provided for all Haz-Mat personnel and will be tracked for five (5) years after leaving the station, in accordance with the S.A.R.A. Title III act. This shall include all personnel at Station 14, Haz-Mat 1, 2, 5 or any person who has received chemical exposure.
- b. All Haz-Mat personnel, including satellites, will complete the Medical History Form. This form will be reviewed by Haz-Mat 1 then sealed and placed on Haz-Mat 114. This form shall be completed annually or when the information contained on the form changes. When the form is updated, the old form shall be returned to the person. It will be the responsibility of the satellite station Captains to notify Station 14 of deletions and additions. At any time personnel are moved within the year, Station 14 is to be notified so that the old form may be removed and a new form may be completed. This form shall be considered confidential and used when medically necessary.

- c. Prior to any use of Level A or Level B Protective clothing all personnel, including the decon team, will be evaluated utilizing the medical evaluation form. The use of this form when using SCBA and Turnouts will be at the discretion of the Haz-Mat Officer.
 - 1) The incident commander must make every effort to have the entry team located in a quiet area, resting prior to the evaluation and prior to entry. The entry team shall be provided with water prior to entry into protective clothing.
 - 2) The entry team shall have sufficient rest (fluid use will be used at the discretion of the medical evaluation team) after leaving the decontamination area, prior to the post medical evaluation. The entry team shall be located in an quiet area after advising the Haz-Mat commander of conditions that were found in the Hot sector.
 - 3) At all times when there is an entry team, there shall be a backup (safety) team. This team shall be in the same level of protective clothing and shall be fully ready to function, with the exception of hooking up the low pressure tube to the SCBA regulator.

Section 5: Operating Procedures for Satellite Units

SCOPE: Immediate response to hazardous situations by trained personnel within the Baltimore County Fire Department. To assist in the abatement of the immediate hazard with consideration being given to minimal loss of life, injuries, and property damage. Other duties may be assigned by the Division Chief or his designee.

PURPOSE: Provide a vehicle and trained personnel to respond to hazardous incidents involving chemicals, hydrocarbons, etc., within Baltimore County or neighboring jurisdictions, as requested.

A. Organization

- 1. The Hazardous Materials Satellite units will be comprised of those members assigned to Stations 13, 15, 17 and 54 and any other stations or personnel that may be assigned from time-to-time by the Division Chiefs.

B. Response

- 1. A satellite unit will automatically be dispatched whenever Haz-Mat 114 is dispatched, except for mutual aid responses. Haz-Mat 114 may request a satellite unit.

C. Responsibilities of the Satellite Units

- 1. Respond directly to the scene and take control of same, paying particular attention to the safety of Fire Department personnel and the general public.
- 2. Identify the hazard and take any appropriate action deemed necessary, if this can be done without risk, and provided that appropriate protective clothing and decontamination is available.
- 3. Evaluate the hazards and set up initial evacuation, and supervise the first responders, in defensive actions only.
- 4. Advise Haz-Mat 114 of the hazard and conditions.
- 5. Research the Material with available references.

6. Upon arrival of Haz-Mat 114, report directly to the Officer-in-Charge as to the conditions and any action taken by the Satellite crew.
7. Assist the crew of Haz-Mat 114 as requested by the Haz-Mat Officer.
8. Provide assistance for the crew of Haz-Mat 114 when donning protective clothing.
9. Provide a backup team in protective clothing, if needed.
10. If Haz-Mat 114 is first on the scene, Satellite companies, including the driver, are to report to the Haz-Mat Unit in full protective gear and breathing apparatus, unless advised otherwise by Haz-Mat 114 or Haz-Mat 1.

Section 6: Operating procedures for Haz-Mat Medics

- A. The primary response medics shall be those medics that are housed with Satellite companies (M14, M13, M15, M17, M54).
- B. Medic 14 shall be the primary response vehicle to handle the medical evaluation sector for the entry, backup and decon team members.
 1. Medic 14 or any of the Satellite medics will not become part of the entry, backup, or decon team unless deemed necessary by the Haz-Mat Team commander.
- C. Treatment of exposed patients
 1. The medical team shall remain in a safe area and wait until the patient is properly decontaminated prior to treatment. If it shall be necessary for the medical team to enter the decontamination area, they shall be equipped with protective clothing one (1) level below the entry team.
 2. All patients must be decontaminated as thoroughly as possible prior to being placed into a medic unit. There shall be no transporting of a contaminated patient to any hospital.
 3. All medical personnel will wear appropriate protective clothing when treating a patient who has just been decontaminated, as determined by the Haz-Mat Team safety officer.
 4. If it should be necessary to treat a patient in or around the decon area, precautions shall be taken to use disposable equipment or provide protection for the equipment. While the patient is contaminated only Basic Life Support procedures shall be utilized.
 5. The medical team will consult with the Haz-Mat team prior to transporting the patient so that available resource information may be provided for the appropriate medical facility.
 6. The patient shall be transported to a facility that will be able to handle a patient who has been exposed to a hazardous material.
 7. The Haz-Mat medics will provide the hospital with all of the information needed to treat the patient. If more information is required, then the medics will become the liaison between the hospital and Haz-Mat 114. The Haz-Mat team has the capability to fax information from the scene, if needed.

Section 7: Training Committee

- A. The Haz-Mat Advisory and Training Committee shall consist of one representative from each shift at Station 14. A member from each satellite shall also be present. Haz-Mat 1, 2, and 5 and a representative from the Fire Academy shall also sit on the committee. Other persons may be appointed by Haz-Mat 1 from time to time. All interested parties are urged to attend the meetings.
 - 1. Haz-Mat #4 will be the Chairperson of the Haz-Mat Advisory and Training committee.
 - 2. All hazardous materials training will be approved by the committee.
 - 3. All scheduling of Hazardous Materials training will be made through the Chairperson, who will coordinate the training with the Fire/Rescue Academy.
- B. A yearly refresher course will be provided for all personnel.
- C. Additional training will be provided, as deemed necessary, by the Committee.
- D. The Committee will assist with Division/Battalion Drills, as requested.
- E. The Committee shall meet every month, the Chairperson will establish the schedule.

Section 8: Training requirements

- A. The Haz-Mat team shall follow OSHA 1910.120, NFPA 471 and 472 in regard to training requirements. NFPA 472 sets up four levels of responses to hazardous materials incidents;
 - 1. First Responders - Awareness
 - a. EMS personnel and Police officers.
 - b. Recognition of a Haz-Mat incident
 - 2. First Responders - Operations
 - a. Engine and Truck Companies
 - b. Recognition of a Haz-Mat incident and act defensively to control a release.
 - 3. Hazardous Materials Technician
 - a. Satellite Companies
 - b. Can act offensively to control a release, if proper protective clothing and decontamination is available.
 - 4. Hazardous Materials Specialists
 - a. E-14; Haz-Mat 114; Haz-Mat 1, 2, and 5
 - b. Works with and supervises Technicians

B. Staffing requirements

1. There shall be a minimum of one (1) specialist and one (1) technician on duty assigned to E-14 or Haz-Mat 114.
2. There shall be a minimum of one (1) technician on duty at each Satellite company.
3. At any time that Level A or Level B protective clothing is used, there will be a minimum of one (1) Technician on the entry team.
 - a. A list, updated on an annual basis, will identify the training levels of all personnel on the Haz-Mat team. A copy of this list will be kept on Haz-Mat 114.
 - b. The Fire Department's Professional Qualifications Board will determine through normal procedure, the training levels for all persons. This effort will be made in coordination with the Fire/Rescue Academy.
4. As a minimum there shall be a Technician supervising the decontamination area.

Section 9: Miscellaneous Requirements

- A. At all times when Level A protective clothing is used, radio communications will be available for the entry and backup team. The frequency that is used for suit communications shall be restricted from any other use.
- B. The entry team will be advised of current conditions and any changes that occurred during their medical evaluation.
- C. Any persons outside of the Fire Department who may be utilized at an incident shall be instructed in the use of any protective clothing that may be used. The person must also be aware of the hazards involved and what duties are to be performed.
- D. Any time a Level A suit is used, the ledger shall be marked as to the date, chemical(s) exposed to, and who wore the suit. Level A suits shall not be used for training. After any use, even backup, the suits shall be tested.
- E. The level A suits shall be tested every 6 months and test results shall be posted in the ledger. The testing procedure shall follow the manufacturer's suggested guidelines (See Appendix D).
- F. Level B suits are to be disposed of after use. If Level B suits are used for training, then they shall be removed from service and marked - "For Training Only".
- G. Combustible Gas indicators are to be tested every 2 months or after a use which would require retesting. With each meter, a log is to be kept and completed after every use. These logs will be kept for the life of the meter.
- H. Any time more than four (4) tubes of any one type are used or there are only 6 tubes remaining of any one type from the draeger kit, notify Haz-Mat 1 so that replacement tubes may be ordered. Tubes will be replaced on or before the expiration dates.

APPENDIX A - ABSORBENT DISPOSAL

A. Disposal

1. The following procedures are to be followed when handling hazardous materials spills which are non-flammable (see note).
 - a. If one (1) to five (5) bags of absorbent material are used to pick up diesel fuel/fuel oil, these bags of used absorbent may be placed in a dumpster for disposal.
 - b. When six (6) or more bags of absorbent are used, the Baltimore County Department of Environmental Protection and Resource Management is to be notified. To make arrangements to dispose of these products, contact Fire Dispatch, who will contact Environmental Services Bureau to make arrangements to pick up the contaminated absorbent.
2. The following procedures are to be followed when handling hazardous materials which are considered flammable (see note).
 - a. Any flammable liquid, such as gasoline, jet fuel, etc., that absorbent is used on, in quantities of one (1) to five (5) bags, may be returned to your station and placed in steel drums provided. **DO NOT PLACE THESE BAGS OF USED ABSORBENT IN A DUMPSTER.**
 - b. Contaminated absorbent that has been saturated with gasoline or other flammable liquids will be carried back to your station and stored within the steel drums. Notify Station 14 when 1 drum is full that you have the used product at your station.
3. Unidentifiable products
 - a. For any product that cannot be identified, in any quantity, you must notify dispatch, who will contact the County Environmental Protection and Resource Management Department and advise them of the situation. Unidentified products must be analyzed before the disposal procedures can be determined. **DO NOT RETURN THIS TYPE OF MATERIAL TO YOUR STATION.**
4. Spill Reports
 - a. Any time that one (1) or more bags of absorbent are used, a Maryland State Spill report must be completed. Forward original and one copy with fire report to headquarters; retain one copy for station records.
5. With the current type of absorbent, one bag will absorb up to 18 gallons of product, depending on the viscosity of the product.
6. Used absorbent pick up shall be coordinated with Station 14. The Dump run will be made on Tuesdays. The dump run will be completed if more than 3 stations have single drums that need to be picked up. If any one station has both drums full, then the run shall be completed.

NOTE:For the purpose of this S.O.P. only, a flammable liquid shall be any product with a flash point below 100 degrees Fahrenheit.

APPENDIX B

Hazardous Materials Patient Transportation and Hospital Care

- A. The decontamination procedures outlined in Tactical Series #01 shall be followed, as well as the outlined EMS procedures.
- B. Transport Procedures
 - 1. Any non-essential equipment shall be removed from the unit, and disposable equipment that is available shall be utilized.
 - 2. The transport Medic shall consult with the Haz-Mat Operations Officer and the Safety Officer prior to placing the patient into the Medic Unit, so as to insure that the patient has been properly decontaminated.
 - 3. Proper levels of protective clothing shall be worn by the Medic crew, as determined by the Haz-Mat Operations Officer and the Safety Officer. The level of protective clothing shall be determined by the anticipated amount of exposure during transport and while releasing the patient to the Emergency Department Staff.
 - 4. The Medic unit shall be ventilated as much as possible during the transport to the Hospital. The Haz-Mat Operations Officer and the Safety Officer will determine the need for decontamination procedures for the Medic Unit. If decontamination is required for the Medic Unit, the Medic Unit shall return to the scene for decontamination.
- C. Hospital Procedures
 - 1. The patient shall be transported to a Hospital facility that will be able to handle a patient who has been exposed to a hazardous material.
 - 2. The receiving hospital shall be contacted as soon as possible, even if there is no specific patient information so the Emergency Department staff can prepare for the arrival of the patient.
 - 3. The Medics shall consult with the Haz-Mat Operations Officer and the Safety Officer in regard to the use of the hospital decontamination room. The extent of isolation shall be decided so that the hospital will have time to prepare. If further decontamination is to take place at the hospital, the County Department of the Environment and Resource Management or the State Department of the Environment (MDE) Officer shall be consulted in regard to the removal of the wastewater. If the water is to be drained into the City system, then prior notification to the wastewater plant is required. If the wastewater and other materials (protective clothing) are to be removed from the hospital then the agency responsible for the clean-up will be required to remove the material(s) from the hospital.
 - 4. The transport medics shall advise the hospital on the patient's condition, material exposed to, and level of contamination. The hospital shall also be advised of appropriate levels of protection that they will require upon the Medic's arrival.
 - 5. The transport Medic shall insure that the chemical information has either been sent to the hospital by fax or whether it will be going with the patient.

6. Upon arrival, the Medics shall assure that the Emergency Department is prepared for the arrival of the patient. The outside entrance into the decontamination room at Sinai Hospital shall be used to move the patient into the Decon room. The Decon room is located at the Ambulance entrance, just inside the first set of glass doors and to the left. The entrance is marked. Do not take the patient through the normal entrance to the Emergency Department.
7. The transport Medic shall remain with the patient and assist the Emergency Department staff with further decontamination of the patient. If further information or assistance is required, the Medics shall be the liaison with the Haz-Mat Team and the hospital.
8. Depending on the severity of the situation or if a number of patients need assistance at the hospital, then the Haz-Mat team shall be called to the hospital. If the Haz-Mat team is unable to respond, then Baltimore City shall be asked for mutual aid. In the event that Baltimore City is assisting, then the Medics shall assist their Haz-Mat Team with any information that they would require.

APPENDIX C - DECONTAMINATION

- A. The plan as established is a guideline.
- B. The decontamination area shall be surrounded by a 3" line. Facing the hot sector the 3" line will start on the right side and shall surround the decon area and then will loop under the decon area to separate the Gross decon from the remaining stations. At the end of the loop a siamese shall be placed, the manifold shall be placed on the siamese (see attached diagram).
- C. Plastic shall be placed within the 3" line, and the line that crosses the decon area shall be tucked under the hose line first. The sides shall then be tucked under so as to control runoff.
- D. The decon area will be approximately 35 feet by 15 feet, utilizing approximately 150 feet of 3" line.
- E. Barrier tape or tree marking tape shall be used to distinguish the clean side from the contaminated side. If it is not possible to hang the barrier tape, it shall be taped down to the plastic so as to identify the clean and contaminated sides (utilize duct tape).
- F. Under windy conditions, it is important to quickly place the equipment onto the plastic.
- G. The fourth pool (station 7) will be inflated and set to the side, if the body wash is not going to be utilized on scene. However, the pool must be ready in the event of an emergency condition that might require its use.
- H. In the process of setting up decontamination, it will be necessary for personnel to set up the tool drop and the gross decon in the hot sector. It is important to remember that the decon area is set up on the outermost perimeter of the hot sector and that this area shall not be considered "hot" until contaminated by the entry team.

APPENDIX D - CHEMICAL PROTECTIVE CLOTHING TESTING

- A. Chemical protective clothing testing shall be performed to the specifications provided with the protective clothing. The general testing procedure is provided below.
- B. Any set of protective clothing that fails the test shall be removed from service and Haz-Mat 1 shall be notified of the failure. Note: Any repairs required and authorized by Haz-Mat 1 will be performed by the suit manufacturer.
- C. Testing procedure for the PVC suits is as follows;
1. With the modified stoppers, plug the dump valves from the inside of the suit, being careful not to get the valve stem caught between the stopper and the wall of the dump valve. The stems should fit into the holes that have been drilled into the stoppers.
 2. Insert the dump valve jig into the dog house, and attach like a dump valve. Make sure it is seated properly.
 3. Close all zippers and lay the suit out as flat as possible.
 4. Connect the air supply to one fitting on the jig and the pressure gauge to the other. The use of the 3' extension hose for the gauge is recommended, as this prevents accidental breakage of the gauge.
 5. Using the furnished valve, inflate to 1.0" of water, then slowly inflate to 3.0" of water, making sure that the arms and legs are able to fill out, and that the zippers do not have folds in them. Wait at least two minutes for the material to settle after it stretches during inflation.
 6. Disconnect the air hose and with the valve, lower the pressure to 2.2" of water.
 7. Note the exact position of the needle. Wait five minutes. During this time period the suit must not be touched or pinched in any way.
 8. The gauge should not drop more than 0.2" of water (one mark). If a suit fails this test a soapy water test at 2.0" of water must be performed over the entire suit. Common causes of leaks are:
 - a. Insufficient seal between glove and sleeve.
 - b. Improperly seated dump valve. The rubber stoppers only prevent air loss through the dump valves, not around them.
 - c. Zippers are not fully closed, or the seal around the zipper is faulty.
 9. After any leaks are located and corrected, repeat steps 1 - 8. If the suit still fails the test, remove from service and notify Haz-Mat 1.
- D. Testing procedure for Butyl suits
1. Lay the suit flat.
 2. Plug the 4 dump valves with the plugs from the inside of the suit. Close all openings.
 3. Remove one glove and replace with sleeve adaptor.

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4. Connect air supply to quick connect fitting.
5. Open air valve and inflate suit. After suit inflates, check gauge pressure frequently to make certain suit pressure does not exceed 5" of water pressure. Pressurize the suit to 5" of water for one minute to fill out the wrinkles in the suit. Do not inflate over this pressure.
6. Reduce the pressure to 4" of pressure and begin timing for 3 minutes. At the end of that time, the pressure should be no less than 3.2".
7. If the suit fails, perform a soapy water test to locate the leaks. If the leaks are repaired, retest the suit following steps 1 - 7. If the suit fails remove from service and notify Haz-Mat 1.