MCFRS HAZMAT
STANDARD OPERATING GUIDELINES
2014 EDITION

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[SOG1] THE ROLE OF THE HAZMAT OFFICER

The Hazmat Officer (HMO) is the highest-ranking Hazmat officer on the scene of an incident.

When a Hazmat Battalion Chief responds on an event he/she will generally act in the lead role for Hazmat resources while the Hazmat station officer manages the technical and tactical aspects of the operation

Where an SOG exists for a particular situation the Hazmat Officer will follow that SOG to the best of his/her ability within the limits of common sense and due diligence.

If an officer decides to not follow an SOG he/she must report, in writing to the Hazmat Team Leader before the end of his/her next shift the reason(s) why the SOG was not followed.

Whenever a suited entry is required the following basic Hazmat Roster Positions **must** be assigned to qualified personnel:

1. Hazmat Branch Director or Hazmat Group Supervisor
2. Hazmat Safety Officer
3. Hazmat Equipment Team Leader
4. Hazmat Medical Team Leader
5. Hazmat Rehab Team Leader (*may be assigned to non-hazmat resource)*
6. Hazmat Decon Team Leader

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[SOG 2] INCIDENT REPORTING & NOTIFICATIONS

REPORTS

Whenever hazmat units engage in incident operations as a technical resource they must document their:

1. Operational structure
2. Control objectives, and
3. Personnel assignments

If a suited entry by hazmat resources is required the HMO must ensure an ICS208 is completed

The HMO is responsible for completing the State Spill Report whenever absorbent is used at a fuel spill

ALL hazmat incident activities must be captured on an ICS214 form

All Hazmat calls must be documented in the fire/rescue RMS system using the CHART format for the narrative

The HMO will ensure that the requirements of the notifications guide are met

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[SOG 4] SAFETY CONTROLS

GUIDELINES:

GENERAL

- The Hazmat Duty Officer (HMO) will always account first for the safety of the public, emergency responders, and hazmat personnel
- Each Hazmat event will require an established Hazmat Safety Officer (HMSO)
- For minor events, e.g., does not require a hazmat entry or bonding and grounding, the Hazmat team leader may opt to not assign a dedicated HMSO
- The HMSO may not be the incident scene safety officer if the event is more involved than just hazardous materials
- No hazmat entry will be made without a safety briefing by the HMSO with the exception of a known life safety hazard
- The HMSO will ensure that pre-operation medicals, safety briefings and communications plans are complete before entry
- Given the peculiar physical demands of working in SCBA especially in a fully encapsulated suit and especially given the time needed for decon Hazmat entry personnel will not exceed a **15 minute work cycle with a 45 minute SCBA and a 25 minute work cycle with a 60 minute SCBA**

ON AIR

The hazmat entry team will not operate “on air” in an area without radio communications unless:

- There is a known life safety issue e.g. visible living victim or,
- The hazmat safety officer, hazmat group supervisor (branch director) and incident commander agree that entry without a radio is unavoidable, necessary, prudent, and in the best interest of both the technicians and the public good

RADIO

Entries should be made using a talkgroup in Zone 73.

When a Hazmat entry is made on a conventional channel the channel of choice is 73Echo because it is an encrypted direct channel.

When a HM entry is made on a conventional channel the HMO must assign a communications officer to: monitor the channel, document the activity, and report back if an emergency occurs on that channel (Your EB is of no real use on a conventional channel)

The communications officer will not be assigned any other duties

The Hazmat entry team will check the battery gauge of each entry radio and ensure the battery is fully charged prior to entry.

Entry Teams will confirm communications at regular intervals while operating “on air”

If a mayday is declared on a conventional channel the standard mayday procedure will be used and the entry team will not be asked to switch channels.

When operating in other jurisdictions units will tune their mobile radio to the jurisdiction they are responding to, if possible, and continue to coordinate on 73 Charlie as long as they can but have a plan for coordination on a conventional channel 73 Echo once on scene

EMERGENCY PROCEDURES

Mayday

- Hazmat personnel who experience a Mayday situation will follow current MCFRS procedures for managing Maydays
- Some of the scenarios marked below with an asterisk are automatic Maydays, the other may or may not be Mayday situations

Responder Emergency Alerting Signals [1]

Responders, in case of radio failure, shall use the following hand signals:

- Hands gripping throat Out of air/Breathing difficulty
- Grip partner’s wrist/ Leave area immediately
- Hands on waist/ Leave area immediately
- Hands on top of head/Need assistance
- Thumbs up I’m OK/I understand
- Thumbs down I’m not OK

Uncontrolled Fire/Explosion Alerting Procedure[1]

- Incident Commander, using radio and public address, will announce to all involved in the area to evacuate
- Air horns on emergency response vehicles will sound with three blasts to indicate emergency evacuation

*Loss of Air/System Failure**

- Declare Mayday, provide LUNAR information
- Notify partner
- Refer to manufacturers emergency procedures.
- When in an encapsulation suit, remove SCBA facepiece and breathe slowly from exhaled air inside suit.
- Do not squat or otherwise push air from encapsulation suit.
- The exhalation valve, if possible may be removed once exit from hot zone has been

accomplished. {this should be a last resort}
- For non-encapsulated suit, disconnect air hose and reconnect to partner's EBSS connection.
- Leave hot zone immediately with partner
- Request aid from back-up team (if needed)
- Proceed to decontamination area for emergency decontamination {if required} and suit removal

*Puncture, tear or other Suit Breach**
- Fold suit material over puncture or tear and hold in position with hand
- Declare Mayday, provide LUNAR information
- Notify partner
- Leave hot zone immediately with partner
- Request aid from back-up team (if needed)
- Proceed to decontamination area for emergency decontamination {if required} and suit removal

*Injury or Illness**
- Declare Mayday, provide LUNAR information
- Notify partner, back-up team and safety officer of problem by radio or hand signals, and request help
- If partner has collapsed, make every attempt to provide assistance and wait for the arrival of the back-up team
- Do not remove chemical protective clothing while in hot zone unless area is safe to do so and no contamination is present.
- Do not attempt to lift or otherwise remove partner without help, as this is usually very difficult
- Assist back-up team in removing partner, unless air supply is low

Personal Protective Equipment Failure[*1]*
- Declare Mayday, provide LUNAR information
- If any responder experiences a failure or alteration of the PPE, that person AND his/her buddy shall immediately exit the hot zone. Re-entry shall not be permitted until the equipment has been properly repaired or replaced
- The "buddy system" shall be used at all times

Other Equipment Failure [1]
- If any other equipment on the incident scene fails to operate properly, the Incident
- Commander, HMDO, and HMSO shall be notified and shall then determine the effect this failure has on continuing operations
- If the failure affects the safety of personnel or prevents completion of the Entry Objectives, all personnel shall leave the hot zone until the situation is evaluated and appropriate actions are taken.

[1] *REFERENCE*

#	Signal	Meaning
1	Hands gripping throat	Out of air/Breathing difficulty
2	Grip partner's wrist	Leave area immediately
3	Hands on waist	Leave area immediately
4	Hands on top of head	Need assistance
5	Thumbs up	I'm OK/I understand
6	Thumbs down	I'm not OK

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[SOG5] CREW RESOURCE MANAGEMENT

Crew Resource Management (CRM) is a useful tool for hazmat operations. Use of CRM can reduce errors on the scene. For the purposes of hazmat operations we have outlined a 3-step process for initiating CRM in the hazmat environment. Whenever you feel as though something is wrong with the information, tactics or process you are obligated to make your concerns known:

Step 1 – state the facts
Step 2- Name the name and challenge
Step 3-Take Action

Example:
You are preparing to make entry on a CO leak without any confidence testing on the meters
Step 1- state the facts, “The meters were not bump tested.”
If this is not enough to halt the process, e.g., crews are still headed in then,
Step 2- Name the name and challenge, “Captain Russet, the meters were not bump tested prior to entry

If this still does not cause a pause in the action and reconsideration then,
Step 3- take action, “Captain Russet, we cannot make entry without first bump test. I am stopping until the testing occurs.”

Remember CRM is not a tool for unwarranted insubordination it is a tool for making sure that everyone is aware of a potentially harmful issue. Once you have been acknowledged the burden of explanation AND the burden of justification rests with the HMO.
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[SOG 6] BASIC METER REQUIREMENTS

Purpose
This SOG provides the framework for a consistent approach to hazmat incident initial actions and recon by outlining the basic metering compliment required for each hazmat call that requires a suited entry. The only exceptions are:

1. When there is a known hydrocarbon spill and there is no reason to suspect involvement of any other materials, there is no need for metering beyond the CGI
2. When there is an identified and verified chemical release meter selection should be specific to the hazard

REQUIRED METERING/MONITORING

1. CGI
2. PID
3. GAMMA RAE or other PRD
4. Heat Gun or Thermal Imager
5. pH paper moistened w/distilled water

The HMO has the discretion to add additional metering as he/she desires but must not reduce this compliment unless the scenario falls into one of the categories above.
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[SOG7] DECONTAMINATION

Purpose

The purpose of this SOG is to provide a general framework for conducting decontamination where decontamination is described as the process of removing or neutralizing contaminants that have accumulated on personnel and equipment

Decontamination Plan

A Decontamination Plan must be developed by the Decontamination Team Leader as part of the Site Safety Plan and set up before any personnel or equipment enter areas where the potential for exposure to hazardous substances exists

The Decontamination Plan will:

- Identify the Decon Team Leader
- Identify Decon Team personnel
- Identify the hazardous materials involved
- Determine appropriate decontamination method and procedures (to incl. level of CPC/PPE and respiratory protection, type of decon and control measures)
- Determine location of decontamination zone
- Determine the equipment needed
- Describe clean-up/termination procedures
- Provide disposal procedures

Personal Protective Equipment

The level of chemical protection for persons performing decontamination shall be selected by the Research Officer and will vary with hazardous material involved, and decontamination method being used.

In some cases, decontamination personnel should wear the same levels of CPC. In most cases decontamination personnel will wear Level B (NFPA 1992 or NFPA1994 Class 2 or 3) attire, SCBA, helmet, double gloves and boots. Gloves and boots should be tucked under the sleeves and legs of outer clothing, taped with compatible tape to prevent contaminants from running inside the gloves and boots and any other compatible equipment required for adequate protection.

Incident Response Actions

A Decon Team Leader shall be designated by the HMO and is responsible for the decontamination set-up, assigned personnel, and procedures.

Decontamination is to proceed based on three considerations:

A} type of contaminant
B} who or what is to be decontaminated
C} physical state of the contaminant

Contamination Prevention

All articles such as shoes, belts, watchbands, or jewelry shall be removed and placed into a labeled plastic bag and safely secured.

Personnel should wear disposable garments and use disposable equipment where appropriate.

All equipment used must be decontaminated and/or properly packaged, identified and prepared in compliance with EPA federal regulations for disposal.

Equipment taken into the hot zone must be used in a manner that will prevent direct contact with the contaminate whenever possible.

Personnel should protect monitoring and sampling instruments by bagging or wrapping with plastic. Make opening for sample ports and sensors.

Personnel should use remote sampling, handling, and container opening techniques where possible.

Decon Set-Up

Entry and exit points to the decontamination area should be clearly marked.

The decon corridor should be located on a level surface, upwind and uphill from the hot zone, in such a location that any contaminated water will travel back into the hot zone.

The decon corridor must be remote from drains, ponds, streams, and any other water way or system that contaminated run-off may enter.

On-site decontamination procedures shall be limited to decontamination trained personnel.

The chemical and physical compatibility of the decontamination solutions or other decontamination materials shall be determined by research and the Decon Team Leader prior to use.

Priority shall be given to the decontamination of contaminated fire/rescue personnel and civilians followed by equipment and the environment.

All personnel, clothing, equipment, and sample containers leaving the contaminated area most be decontaminated if contamination is present or suspected.

All reusable equipment shall be decontaminated.

Decontamination requires the capture and confinement of contaminated water and/or

materials. Disposal of contaminated waste will not be attempted until steps have been taken to determine the levels of contamination and requirements for proper disposal have been determined through consultation with Maryland Department of the Environment. {pH values less than 2 and greater than 12.5 are hazardous waste}.

The Decon Team Leader shall ensure effectiveness of decontamination usually by visibly observing or sampling.

Any decontamination method that damages or impairs the safe functioning of the CPC should not be used.

All decontamination personnel shall perform a complete self-decontamination. The extent of their decontamination should be determined by the type of contaminant they may have contacted and the type of work performed. (*Special attention should be given to gloves as gloves come into contact with contaminants more often than other parts of the PPE*.)

DECON SOLUTIONS

The two decon solutions are plain water and plain water with a surfactant (soap)
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[SOG 8] METRO

The purpose of this HMSOG is to establish guidelines for the Initial response to Hazardous Materials incidents involving the METRO system.

Assumptions

- If Hazmat is being alerted either there is intelligence to suggest that there has been some sort of chemical release prior to dispatch or initial responders develop a sense that something is happening that requires a Hazmat response
- The primary Hazmat and Support Companies are also due on a significant number of initial METRO alarms
- It is difficult to re-direct companies already engaged in operations, including Hazmat resources that are operating as part of the initial alarm on an incident
- Based on the above the assumptions it is likely that Hazmat will be initially working with a smaller group than usual until more resources can be assembled or operating Hazmat resources can be re-directed
- Hazmat resources can develop a picture of what is happening underground by observing the people who have made it above ground
- Initial Hazmat response ends when entry crews reach the limit of lethality which is where there are no longer any living victims- **STOP THERE**
- The effects of known chemical warfare agents on humans is established enough to assume for initial actions that the absence of miosis is the absence of known organophosphate based chemical warfare agents

Guidelines

The main objectives of the Hazmat Team on a METRO incident are

1. Ensuring life safety for response personnel and civilians
2. Initial Recognition and Identification
3. Ensuring effective decontamination of living people
4. Establishing a framework for extended operations

Initial Recognition and Identification MUST remain subordinate to Life Safety.

While it is not expected that the initial Hazmat Entry team will spend their entire time rescuing people it is expected that they will move people to areas of refuge, treat critical people until help arrives, and/or direct other responders to the injured

It is a fair assumption that people who are obviously in need of rescue will be alert and perhaps mobile, in those cases it is also true that the mere fact that there are living people in need of rescue provides indications about the nature and concentration of suspected hazards the Hazmat team is seeking to complete Initial Recognition and Identification

Hazmat personnel must begin investigation of possible hazards by first observing the people leaving the station, tunnel, or scene

Hazmat personnel must not enter ROW until 3rd rail power has been confirmed down by OCC, it will not be possible for Hazmat personnel to check 3rd rail status

The Hazmat entry team must avoid entering the ROW, because they cannot independently verify 3rd rail status

The default chemical protective clothing is a Level B suit with SCBA- until the entry team reaches the area of lethality*- this is the turnback marker

The default meter selections is the same as those listed in Basic Metering

If the scene is a suspected terrorism event then Hazmat personnel must also consider that there are secondary devices

It is not possible to locate secondary devices while moving in suits in a dark or smoky environment only proceed as far as necessary to get a general sense of what is happening

First arriving Hazmat Company will establish a Staging area and advise incoming Hazmat resources and command of the location of that staging area

Once the initial operations are over and the incident can move into the incident stabilization mode- The HMO will ensure that a proper Incident Action Plan specific to hazmat is developed in conjunction with the incident commander and the appropriate external partners.

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* *The area of lethality is the area where there are no more living things.*

[SOG 9] CHEMICAL SUICIDE

PURPOSE
To provide a consistent and safe approach to incidents involving known or suspected chemical suicides

BACKGROUND
Chemical suicide and detergent suicide are common names for a common method of suicide. Using the method a person obtains common household chemicals and then combines them according to readily accessible recipes in enclosed spaces-usually automobiles or closets. When mixed the chemicals produce simple asphyxiants that cause death over a relatively short period of time.

In many cases the victim will leave signs, notes, or other message warning of danger or to call hazmat. However, this does not happen in all cases. While sometimes there are environmental warnings of a chemical presence such as visible residue, discolored metals, buckets, bottles, or other apparatus in vehicles or other small spaces.

CRITICAL RESPONSE OBJECTIVES
The main objectives of Hazmat response are:

- To provide for responder and bystander safety
- Rule out the presence of other hazards
- To ensure appropriate decontamination
- To protect crime scene to the extent possible
- To assist with evidence collection-*ensure it is safe to handle*-

HAZMAT ACTIONS

Chemical Protective Clothing (CPC)
The CPC selection guides provided below are a very conservative guess based on the general characteristics of typical situations. The HMO MUST consider all available information before making a final determination.

Approach, Control Zone Establishment
- Turn out gear
- SCBA

Scene Contact, Decontamination,
- Level B splash protection
- SCBA
- Silver shield under glove/nitrile or butyl overglove
- Chemical resistant boots

Meter Compliment

Direct Read

- H2S | HCN | O2 | PH3 (*if available*) |
- Alpha, beta, gamma radiation (*to rule out radiation*)
- Heat gun or thermal imager (*to rule out polymerization reactions*)
- Moistened pH paper (*to rule out corrosivity)*

Indirect Read

- PID (*primarily to rule out phosphine*)

Turnback Values

- LEL >25%
- Visible vapors
- Radiation of any type >2X background

Cautions

- Do not touch anything you do not have to touch
- Do not step in any puddles

Decontamination

- Low pressure high flow plain water
- No need to contain
- Focus on hands if contact was made with substances
- Confirm cleanliness with pH paper (*primarily corrosivity hazard from residue*)

Initial Actions

1. Consult with command/on scene units
2. Ensure scene isolation distances are adequate
3. Establish control zones based on metering/monitoring of area any meter change signals hot zone Allow law enforcement to rule out other hazards such as (IEDs, booby traps)
4. If the victim is still alive ensure complete clothing removal and gross water decontamination by Hazmat providers in CPC AND...
5. Meter the exhaled air of victim with PID. If PID is positive confirm with direct read of phosphine
6. If patient was transported prior to Hazmat arrival send personnel and adequate equipment to emergency room to meter/monitor EMS care providers, emergency room personnel, and the patient

Substance Disposal

1. Items used in chemical suicides can generally be decontaminated with soapy water and the runoff released into the sewer system
2. Use pH paper/meters to determine effectiveness of decontamination

3. The items should be double bag and placed in regular trash
4. However, if there is any question as to whether is is safe to dispose of items in this way consult with MDE by phone
5. **AT NO TIME IS IT ACCEPTABLE TO TRANSPORT SCENE WASTE ON THE HAZMAT UNIT**

Victim Extraction

It may be necessary for hazmat to assist with the removal of a deceased victim from the scene. After consulting with law enforcement:

1. Initiate ventilation of the space
2. Approach the scene using meter compliment
3. Meter exhausted air from deceased with PID before turning over to medical examiner

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[SOG 10] RADIOLOGICAL EVENTS

Purpose:
To provide MCFRS Hazmat responders with guidance for managing incidents that involve radiation. This guidance is very similar to other fire department plans in the National Capitol Region.

General:
This document is to be used as a guideline for emergency responders operating in the initial stages of a radiological event. The initial stage is defined in one of two ways:

- The rescue of live victims
- In the absence of victims, establishing a control line, isolating, evacuating the area

Always assume chemical, radiological or biological materials are present in an explosive event. Wear full personal protective equipment and SCBA until such materials have been ruled out. Wearing SCBA will prevent the inhalation of airborne radioactive material.

The MCFRS Hazmat Team will use the Roentgen as their standard unit to measure radiological exposure. Agencies responding to assist in the incident will be expected to comply with this standard.

The MCFRS Hazmat Team considers:

1- Roentgen (R) = 1- Radiation Absorbed Dose (RAD) = 1- Radiation Equivalent Man (REM)

We will measure radiation exposure rates in micro-roentgen(R), milli-roentgen (mR) and roentgen (R), per hour (/hr).

1,000 micro-roentgen (R) =	**1** milli-roentgen (mR)
1,000 milli-roentgen (mR) =	**1** Roentgen (R)

Natural background in the DC area ranges between:

5 -20 mR/hr =	**0.005 - 0.2** mR/hr

RADIATION CONTROLS – (ALARA As Low As Reasonably Achievable)

1. In all suspected radiation incidents, the principles of A.L.A.R.A. shall be used to limit responders' exposure to radiation.

2. The basic principles of ALARA are:

    a. Maximize Distance
    b. Minimize Exposure Time
    c. Maximize Shielding

3. In order to ensure that responders receive the lowest possible dose of radiation at an incident the following specific practices shall be used:

    a. Use the fewest possible members to complete a task in a time efficient manner. (Keep people not necessary out of the hot zone, but use as many members as necessary to perform rapid victim removal.)
    b. Ensure the task is worthy of the exposure (Risk vs. Benefit)
    c. Keep the member's exposure time as short as possible (when necessary rotate crews)
    d. Maintain as much distance as possible between responders and radioactive material.
    e. Use natural shielding whenever possible.
    f. Always wear PPE including respiratory protection.

MAXIMUM DOSE LIMITS

1. The following chart summarizes the National Council on Radiation Protection and Measurement (NCRP) recommended maximum dose limits. ALARA principle should always be followed:

Dose Limit (whole body)	Emergency Action Dose Guidelines Activity Performed
5 rem	All Activities
10 rem	Protecting major property
25 rem	Lifesaving or protection of large populations
>25 rem	***Lifesaving or protection of large populations, Only by volunteers who understand the risks.

*****A radiation worker can receive 5 rem per year- whole body exposure.*****

In general any exposure greater than 5 rem will require a follow up medical evaluation as soon as is practical and personnel should only consider proceeding into this level of radiation for a short period and ONLY to save known viable victims.

INCIDENT STAY TIME TABLE

For emergency situations, the following general guidance regarding stay time in contaminated areas is provided.

TOTAL	100 mr	1 R	5 R	10 R	25 R	50R	100 R	125R	150 R
1 mr/hr	4 day	6 wk	7 mo	14 mo	2.8 yr	5.7 yr	11.4 yr	14.3 yr	17.1 yr
2 mr/hr	50 hr	3 wk	3.5 mo	7 mo	1.4 yr	2.9 yr	5.7 yr	7.1 yr	8.6 yr
5 mr/hr	20 hr	8.3 day	6 wk	2.8 mo	7 mo	1.2 yr	2.3 yr	2.8 yr	3.4 yr
10 mr/hr	10 hr	4 day	3 wk	6 wk	3.5 mo	6.9 mo	14 mo	1.4 yr	1.7 yr
25 mr/hr	4 hr	40 hr	8.3 day	16.6 day	6 wk	2.8 mo	5.6 mo	7 mo	8.3 mo
50 mr/hr	2 hr	20 hr	4 day	8.3 day	3 wk	6.0 wk	2.8 mo	3.5 mo	4.2 mo
100 mr/hr	1 hr	10 hr	50 hr	4 day	10 day	20.8 d	6 wk	7.5 wk	2 mo
200 mr/hr	30 min	5 hr	25 hr	50 hr	5 day	10.4 d	3 wk	3.7 wk	1 mo
500 mr/hr	12 min	2 hr	10 hr	20 hr	50 hr	4.1 d	8.3 day	10.4 day	12.5 day
1 R/hr	6 min	1 hr	5 hr	10 hr	25 hr	2.1 d	4 day	5.2 day	6.2 day
2 R/hr	3 min	30 min	2.5 hr	5 hr	12.5 hr	1.0 d	50 hr	2.6 day	3 day
5 R/hr	72 sec	12 min	1 hr	2 hr	5 hr	10 hr	20 hr	25 hr	30 hr
10 R/hr	36 sec	6 min	30 min	1 hr	2.5 hr	5 hr	10 hr	12.5 hr	15 hr
25 R/hr	14.4 sec	2.4 min	12 min	24 min	1 hr	2 hr	4 hr	5 hr	6 hr
50 R/hr	7.2 sec	72 sec	6 min	12 min	30 min	1 hr	2 hr	2.5 hr	3 hr
100 R/hr	3.6 sec	36 sec	3 min	6 min	15 min	30 min	60 min	75 min	1.5 hr
200 R/hr	1.8 sec	18 sec	90 sec	3 min	7.5 min	15 min	30 min	37.5 min	45 min

Current Radiation Equipment and Use

Name	Primary Use	Current Alarm Setting	Notes
Ludlum	Contamination	n/a	Reads in counts/minute should be set up for Alpha/Beta detection
Canberra UDR13A	Dosimeter	2mR/hr	Measures dose accumulated over a period of time
PRD Gamma Rae II	Gamma Detector -personal radiation alarm	2X Background	Used on all calls where radiation might be suspected. Provides gamma ray detection. Alpha and Beta contamination is prevented with PPE and respiratory protection
RIID/SAM 940	Isotope Identifiers	n/a	Use to determine exact isotope present along with dose rate of radiation
Thermo FH40	Secondary Detection/ Decon	n/a	Primary use is in determining clean/dirty @ decon
Canberra	Second Line Contamination Meter	n/a	

RESPONSE TO SUSPECTED RADIOLOGICAL RELEASE

INITIAL ACTIONS

1. The default assumption will be that radiation is present until it metering technology is unable, after exhaustive surveying, to find it beyond twice background
2. Initial PPE for Hazmat Team members responding to a known or suspected radiation incident will be a chemical protective over garment with nitrile gloves and overshoes
3. SCBA must be worn until the area is cleared
4. MX6 OR 4 GAS METER & PID
5. GammaRae set to PRD or Search mode and Ludlum with alpha, beta, gamma probe to scan powders, liquids (Can also use Thermo with alpha, beta, gamma probe).
6. If GammaRae detects presence of radiation need to back out and reassess situation.
7. Must retrieve a dosimeter before reentry.
8. If responding to an explosion or an event with numerous people down or incapacitated, every effort should be made to approach the incident from uphill and upwind. Additionally, begin approach 300 feet from incident or at the edge of debris field.

Size-up the situation.
If LIVE victims are present use the *INITIAL ACTIONS WITH LIFE SAFETY CONCERNS* guideline.
If no live victims are present use the *INITIAL ACTIONS WITHOUT LIFE SAFETY*

CONCERNS guideline.

INITIAL ACTIONS WITH LIFE SAFETY CONCERNS

1. If victims are present or the likelihood is great, fire department personnel can begin life saving actions.
2. If initial fire department personnel are NOT equipped with Radiological Dosimeters, they may conduct life saving operations for a maximum of 15 minutes.
3. If initial fire department personnel ARE equipped with Radiological Dosimeters, they may conduct life saving operations in accordance with the Maximum Dose Limits, (PAGE 2).
4. Remove all victims as quickly as possible from the explosion site and/or the radiological source.
5. Radioactive contamination (whether internal or external) is never immediately life threatening and therefore decontamination should never take precedence over significant medical conditions.

INITIAL ACTIONS WITHOUT LIFE SAFETY CONCERNS

1. If no victims are present – initial actions should be limited to:
2. Establishing a control line based on the presence or absence of contamination. The area should initially be taped or roped off. If contamination is present, establish the control line at 2 times background readings or 50uR/hr. Establish restricted zones, including the downwind plume area.
3. Isolate the area.
4. Evacuate the area.
5. Deny entry.
6. Establish Staging Area for incoming resources
7. Establish Extended Action Plan

ZONES FOR RADIOLOGICAL INCIDENT w/ LIFE SAFETY CONCERNS

The Hot, Warm, and Cold Zones will help reduce radiation exposures and aid in controlling the spread of contamination.
The size of the event scene will determine the size of the zones and the control points needed.

COLD ZONE: Represents the outer boundary of an emergency incident and an area of the least potential for contaminant exposure to workers and others. It is generally an area intended to act as a buffer to keep persons not involved in the response away from the incident at a safe distance.

WARM ZONE: Represents an area of less potential for contaminant exposure to

workers and is the zone that contains the decontamination area. The decontamination activity is located on the upwind and upgrade side and extends from the hot zone to the cold zone. This area may also be used to support the responders with miscellaneous equipment needs such as changing air bottles, and replacing worn or damaged PPE. All exiting from the hot zone will be accomplished by going through the decontamination steps.

HOT ZONE: Represents the area with the greatest degree of threat to individuals working in that area and requires the highest level of personal protection equipment. This area has to be clearly marked with banner tape or a satisfactory substitute to indicate to workers the high potential for exposure and thus the greatest level of personal protection.

The dose rates will determine the location of the Hot, Warm and Cold Zones. If the Dose rates are lower than the zones may be adjusted accordingly.

MAXIMUM ZONE LIMITS for Radiation incident with LIFE SAFETY

COLD ZONE	WARM ZONE	HOT ZONE	ABSOLUTE TURN BACK
<2X background (50uR/hr)	2mR-500mR/hr	500mR/hr	1R/hr

- The maximum zone limits are to be utilized in a radiation event that has life safety concerns. As soon as the life safety concerns are remedied the establishment of new zones should become the priority.
- These zones will not likely be in concentric circles.
- The 2mR/hr line should be utilized only when there is no contamination present within the COLD zone. If contamination is present, the COLD zone line should be pushed back to levels consistent with 2 times background or 50 uR/hr. This will reduce the spread of contamination and allow first responders to more readily assess whether victims have been effectively decontaminated.
- The COLD zone should be taped or identified as soon as resources are available.
- Operations in the WARM zone (i.e. decontamination, control points) should be located as far from the HOT zone as possible, to minimize total dose exposure.
- Operations within the HOT zone should be for life saving purposes only.
- Fire department units that encounter rates above 1R should immediately turn back and notify command.

Radiological Decontamination

1. Wet first, remove clothes second
2. Wetting first reduces the aerosolization of the dust particles that radiation may be clinging to.

3. Remove the clothes to remove the hazard
4. **PAY CLOSE ATTENTION TO WASHING HAIR**
5. The vast majority of all Alpha contamination comes when clothing is removed. This should be followed with a shower as is practical and appropriate.
6. Alpha and beta radiation are particles.
7. The primary decontamination concern is that alpha particle is attached to dust and other particulates. The primary mechanism of danger is inhalation of the dust and/or other particulates and the subsequent decay that occurs in the lungs
8. The danger from beta particles is the ionization of tissue there is no decontamination of beta particles
9. Isolate the clothing from the area of operations using trash bags, overpack drums, or distance
10. Gamma rays and are pure energy and cannot be decontaminated
11. Neutron radiation is also ionizing but in a different way and it can interact with otherwise benign materials to make them radioactive. While you cannot decontaminate neutrons per se you might have to decontaminate alpha particles created by the neutron interaction. It is important to note that neutron radiation can make people radioactive too. This cannot be decontaminated.

DOSIMETRY GUIDELINES

1. Dosimeters record your total exposure to external gamma radiation.
2. All personnel making entry into an area in which a radiation field is known or suspected to exist shall utilize dosimeters. (It is acceptable for only one member of each team to wear dosimeters if the team is to work together in the same area.)
3. Electronic Dosimeters should be worn outside PPE, on the core of the body, to allow for reading in the hot zone.
4. When wearing external dosimeters they should be read and reported every 15 minutes.
5. All dosimeters should be zeroed prior to entry.
6. Dosimeters that cannot be zeroed must be read and recorded prior to entry to establish a base line.
7. Dosimeter tracking forms shall be used any time dosimeters are used.

RESPONDER DOCUMENTATION

1. In all suspected radiation incidents responders' exposure to radiation must be documented.
2. In order to ensure that responder doses are recorded the following specific practices shall be used:
3. Any dose received shall be reported.
4. Responders working as a team and sharing dosimeters shall report the same readings AND indicate that the readings are estimated as a result of shared dosimeters.

5. Responders shall report total dose, type and source of radiation if known, and the time over which exposure occurred.
6. Use of the Dosimeter Tracking Form is MANDATORY [back to contents page]

[SOG 11] POWDER INCIDENTS

Purpose
To provide a consistent and safe approach to incidents involving unknown powders.

Critical Response Objective
The main objectives of Hazmat response are:
- To conduct risk assessment(s)
- To provide field screening- safety and/or identification
- To ensure appropriate decontamination
- To assist with evidence collection

Hazmat Actions
- Hazmat actions will be based on a two-level field screening process supported and preceded by a risk assessment. Level One Field Screening-Safety and Level Two Field Screening -Identification
- The HMO must ensure that the "SOG 12-11 APPENDIX 1-UNKNOWN SUBSTANCE DATA COLLECTION SHEET" is completed and forwarded as directed.
- The HMO must follow the guidance of this document and must refrain from taking any action not prescribed herein and must not fail to take actions described herein unless he/she has consulted with law enforcement/FEI and determined that another course is necessary

RISK ASSESSMENT KEY POINTS

ISSUE	KEY QUESTIONS
Is person a target?	Members of mass media Political figures High-profile facilities or people
Is facility a target?	Judicial buildings Government buildings Mail related rooms and distribution locations
Is facility an unintended target?	Fedex/UPS and others just happened to notice a powder headed somewhere else
How was package powder delivered?	Is this a mailing Is there a reasonable explanation for finding powder where it was

	found Was package expected Can the sender be contacted
Is package suspicious?	SEE PAGE THREE

FBI SCENARIOS

Per FBI guidance powder calls will be divided into one of five basic categories and our response will be based on the category.

1. Letter/container with unknown powder-like substance and threatening communication (with or without illness): [Full Field Screening Safety & Identification]
2. Letter/container with a threat but no visible powder or substances present: [Level 1 Field Screening Safety –assist Law Enforcement]
3. Letter/container with unknown powder, no articulated threat, and no illness: [Full Field Screening Safety & Identification]
4. Letter/container with no visible powder, no threat, but recipient is ill: [Level 1 Field Screening- Safety –assist Law Enforcement]
5. Letter/container with no visible powder, no threat, the recipient is not ill, but the recipient is concerned about the package: [Level 1 Field Screening- Safety –assist Law Enforcement]

PRE-ACTION CHECKLIST

INITIAL ACTIONS
Ensure Command has been established
If Command was established before arrival consult with command
Confirm that the incident requires intervention
Interview recipient, occupant or caller
Determine level of threat (Scenario 1-5)
Make appropriate notifications based on scenario
Isolate and deny entry as necessary and appropriate

LEVEL 1- FIELD SCREENING- SAFETY -

The objective of Level 1 Field Screening is to rule out hazards that are immediately dangerous to life or health -

Hazard	Resource	Turnback Criteria
Explosives/Booby Traps	FEI	FEI determines
Radioactivity	Gamma Rae worn on outside of garment	Any alarm-*if sample will become evidence you must survey for alpha & beta radiation before transferring the sample
VOCs	MX6	Any unexplained rise
pH	pH paper moistened with distilled water	Any highly acidic or basic material

Flammability	MX6	Any LEL increasing as package is approached
Oxidizing Agent	KI paper moistened with distilled water	Any change in color
Fluorinated Substance	"F" paper	Any change in color

LEVEL 2 -FIELD SCREENING- IDENTIFICATION

The purpose of Level 2 Field Screening is to identify the target product.

After the field screening tests are complete and in consultation with law enforcement partners the HMO may conduct Level 2 screening if the following conditions are met:

1. The lead law enforcement official and the HMO concur that there is sufficient cause to conduct further testing
2. That further testing will not interfere with an possible investigations
3. That sufficient powder exists to conduct testing AND leave sufficient powder for more extensive testing later
4. The lead law enforcement official and the HMO develop and implement a plan for the recordation of process and the maintenance of the evidence chain
5. Level 2 field screening will occur downrange whenever possible
6. If Level 2 field screening cannot occur downrange the HMO will ensure that there is a sample handling procedure and a decontamination plan in place before the sample is brought out of the initial isolation zones
7. Level 2 field screening will involve the following meters
8. **NEVER USE LASER TECHNOLOGY ON BULK MATERIALS-THEY MAY EXPLODE- ONLY USE A SAMPLE JUST BIG ENOUGH TO COVER THE LASER OPENING**

HAZARD	RESOURCE	TURNBACK
Radioactivity	Gamma Rae work on outside of garment	Any alarm
VOCs	MX6	Any rise in readings
Flammability	MX6	Any rise in LEL reading
Identification	Ahura Handheld IR OR Hazmat 360	N/A
Identification	Razor PCR Bio-detector	N/a
Identification		

1. At no point will field-screening measures be assumed to be as accurate or conclusive as fixed laboratory testing
2. Negative or inconclusive results of field screening are not sufficient alone to say that no hazard exists
3. The need for further treatment of exposed persons is a public health matter and hazmat will not make recommendations in the absence of medical consultation
4. BEFORE ANY EVIDENCE LEAVES THE SCENE ENSURE THAT IT IS

CHECKED FOR RADIATION.

5. All tools/equipment used will be used in accordance with manufacturer's guidelines and Hazmat quick reference sheets (which are based on manufacturer's guidelines)
6. BEFORE CLEARING SCENE ENSURE THAT LAW ENFORCEMENT, HAZMAT AND MCFRS IN GENERAL HAVE THE SAME MESSAGE AND PRESENT THE SAME INFORMATION TO AFFECTED PERSONS

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[SOG 12] MERCURY

Purpose

The purpose of this HMSOG is to establish guidelines for Hazardous Materials incidents involving mercury from broken thermometers or thermostats in the quantities typical of residential settings, which is typically less than 5 grams (0.38mL).

The main objective of the Hazmat Team in these instances is to reduce the impact of mercury spills on the health of the occupants. Hazmat clean up efforts will be limited to residential settings. When faced with mercury spills in other settings or when the spill in the residential setting is large, dispersed, complicated in any way or meets the reportable quantity1 the situation requires an immediate consultation with the Maryland Department of Environment (MDE). **[1-866-633-4686]**

For non-residential settings the occupants/responsible party will be referred to the MDE approved contractor list and the HMO will ensure to the best of his/her ability that the affected area(s) are isolated and entry is denied.

TERM	MEANING
Residential property	An occupied single family or multi-family structure that is not used for other purposes, e.g., not a dentist office in the basement of a single-family dwelling.
Small spill	The amount of Hg is the amount typical of a single personal use thermometer or home thermostat, or CFL bulb
Dispersed spill	The spill has been spread by sweeping, vacuuming, or other means and encompasses an area greater than would occur from someone dropping a mercury filled item onto the floor
Complicated spill	The spilled Hg has been heated, the measured Hg vapor concentration is greater than 1µg/m3, the amount spilled meets the reportable quantity, or any other situation where in the judgment of the HMO the spill exceeds the capability of the team
Reportable Quantity	Anytime one pound or more of mercury is released to the environment, it is mandatory to call the National Response Center (NRC). The NRC hotline operates 24 hours a day, 7 days a week. Call (800) 424-8802. Because mercury is heavy it only takes two tablespoons of mercury to meet the one-pound limit

Rationale

Residential clean up is allowed for the Hazmat team because a small, non-dispersed spill, uncomplicated is within the capabilities of a non-trained person to clean up. Instructions for such events can be found on the USEPA website and the MDE website. However, the HMO MUST ensure that the spill is minor, non-dispersed, and uncomplicated and that personnel are adequately protected before initiating any clean up action

Limitations

At no time will the Hazmat team take possession of or transport ANY amount of mercury on or in any fire department vehicle.

At no time will the Hazmat team "certify" a structure as safe to occupy when mercury has been spilled inside that structure. The only means available to achieve this level of assurance is for the property representative to contact an MDE contractor reference list *at their own expense and at their own risk.*

Guidelines

For a mercury release with the following circumstances, the HMO must consult with the MDE duty officer:

- a non-residential structure
- a reportable quantity
- a complicated spill
- a dispersed spill

On arrival the Hazmat Officer (HMO) must first attempt to interview occupants and/or first responders to determine the extent of the incident.

The HMO will then ensure a survey of the area/structure using the issued mercury vapor analyzer in a manner that is consistent with the standard behavior of mercury vapor and within the operating parameters of the analyzer/meter as per the supplied analyzer quick start/use check sheet

The HMO MUST ensure that a calibrated 4-gas meter capable of reading CO and H_2S is used in conjunction with the mercury vapor analyzer to rule out interference from other chemicals

Any H2S, CO, or excessive PID readings must be corrected prior to Hg sampling

The HMO must ensure that personnel do not step into mercury **AND** that personnel are protected at a minimum with protective coveralls, protective overshoes, protective gloves, and eye protection

If any first responders are assigned to the incident the HMSO must also ensure that there are no contamination issues with fire/rescue first responders

If the analyzer detects mercury levels above 1 µg/m3 threshold the situation is complicated by definition **AND MDE MUST** be contacted

When any mercury readings above "0" are obtained in a residential structure the HMO will inform the occupants of the potential dangers of mercury (especially with respect to the pregnant, the very young and the very old) and recommend that they do not occupy

the space.

The HMO must be very careful in advising the occupant about the status of the residence in terms of mercury vapor levels. Do not use a blanket statement to the effect of the space is free of mercury vapor. Instead, the HMO must explain that, *"The levels measured are subject to the limitations of the instruments that we are using and very low levels, below the threshold of the meters that the MCFRS Hazmat Team uses, could be present and could pose a health risk to certain subsets of the population."*

If the spill occurs in a multi-family dwelling the HMO will ensure that all reasonable efforts are expended to ensure that there is no mercury or mercury vapor spread beyond the affected area(s)

Before leaving the scene the HMO will ensure that the occupant/responsible party is in possession of a copy of the MCFRS Mercury Information Packet

Ensure mercury is contained/packaged for transport to County recycling facility as per the instructions below, ensuring that the product and any contaminated articles are sealed in two plastic bags with each bag clearly labeled "mercury waste".

The HMO must ensure that all actions, including warm-up procedures, testing methodology and clean up efforts, other remediation efforts, and other aspects of the incident are completely and thoroughly documented in the incident report.

ACTION GUIDANCE FOR SMALL, NON-DISPERSED AND UNCOMPLICATED RESIDENTIAL SPILLS

Managing Spill Area

Keep all people and pets away from the spill area
Isolate HVAC system
Shut doors and all air vents to spill area to avoid spreading contamination
Ventilate down spill area by opening windows or doors
Be careful to not spread the contamination

Spills on Hard Surfaces

Using cardboard pieces push beads of mercury together
Using eyedropper suction up mercury or use cardboard to lift up beads
Carefully place mercury in plastic soda bottle/container, seal with duct tape
Place container and cleanup supplies (contaminated tape, rags, eyedropper, cardboard and gloves, etc.) in a plastic bag, seal and label "mercury waste"
Place bag in a second plastic bag, seal and label "mercury waste"

Spills on rug or carpet

Cut out a section of carpet/rug a bit larger than the mercury-containing area

Cautions

NEVER touch mercury with bare hands
NEVER use a vacuum cleaner on a mercury spill it will cause vaporization
NEVER use a broom to cleanup a mercury spill it will cause the mercury to break up into smaller beads which will be difficult to collect
Ensure that all the mercury is captured
Place cut-out section, gloves and cutting utensil in container
Seal container with duct tape and label "mercury waste"
Place container in a plastic bag, seal and label "mercury waste"
NEVER put mercury waste down the drain, in the trash or incinerator
NEVER use household cleaners to cleanup mercury spills

Spills in a sink

Remove as much water as possible without disturbing the mercury at the bottom (since mercury sinks to the bottom)
Suction mercury from the bottom with eyedropper
Empty the eyedropper into a plastic soda bottles or wide-mouth container
Seal container with duct tape
Place container and cleanup supplies (gloves, eyedropper, etc.) in a plastic bag, seal and label "mercury waste"
Place bag in a second plastic bag, seal and label "mercury waste"

Spills in a Drain

Mercury will get caught in a sink trap.
Working over a large tray or box, remove the trap and pour the contents into a wide-mouth container
Seal the container with duct tape
Place the container and cleanup supplies (sink trap, gloves, etc) in a plastic bag, seal and label "mercury waste"
Place bag in a second plastic bag, seal and label "mercury waste"

Decontamination

DO NOT attempt to decontaminate articles or clothing, bedding, carpeting, etc.
You may clean up mercury from surfaces but all tools, equipment, and contaminated clothing should be bagged and tagged as described above
You may transport bagged and tagged articles of waste generated by the Hazmat Team back to quarters for disposal in the regular outside trash.
This waste must not be transported in the crew compartment of any MCFRS vehicle.
People who have touched mercury should wash themselves with soap and water
If there is any exposure to children, the elderly, pregnant women, or persons with

pre-existing medical the HMO must ensure that the patients are decontaminated as appropriate, AND that both Poison Control and Medical Control are consulted reference the need for transport and/or further medical evaluation/intervention-this consultation must be documented on the approved EMS report and a valid informed refusal obtain if the situation warrants such

If a commercially available mercury specific cleaner such as HgX® Hand Cream and Cleaner is available you may follow the directions on the package to decontaminate people

WRAP UP

1. The HMO will ensure at least one check of the structure with the mercury vapor analyzer after clean up is completed. ANY readings on the mercury vapor analyzer after clean up will require a consultation with MDE
2. Ensure that all containers containing mercury waste are securely packaged and labeled “MERCURY WASTE”
3. Ensure that the occupants are made aware of what to do with the waste, an information sheet about household waste procedures is included in the MCFRS Mercury Information Packet

MCFRS Mercury Information Packet Contents

ATSDR HEALTH EFFECTS HANDOUT
MDE MERCURY SPILL CLEANUP SAFETY
MONTGOMERY COUNTY MARYLAND, MERCURY COLLECTION
[Bring your recovered mercury and materials to a Household Hazardous Waste Collection. Call Montgomery County's Customer Service Center at 311 (out-of-County: 240-777-0311, TTY: 240-773-3556) for the next collection date, or check our online collection schedule.]
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[SOG 13] FUEL TRANSFER

Purpose

To Provide Hazardous Materials personnel guidance for controlling the generation and accumulation of static electrical charges during flammable and combustible liquid transfer operations through the use of bonding and grounding procedures.

Definitions

- **Bonding** is the process of connecting two or more conductive objects together by means of a conductor to minimize potential differences between objects eliminating the chance of static sparking.
- **Grounding** is the process of connecting one or more conductive objects together and providing a path for potential differences to travel to an earth ground (grounding rod).
- **Ohm Meter** is used to measure the electrical resistance and ensure the electrical continuity of bonding and grounding procedures.
- **Flammable Liquid** a liquid having a flash point less than 141ºF (DOT) or 100ºF (NFPA).
- **Combustible Liquid** any liquid having a flash point above 141ºF (DOT) or 100ºF (NFPA).

Hazards and Protection Techniques

- Site safety and control issues must be addressed prior to operations.
- Product removal operations and/or transfer operations cannot commence until after the incident site is stabilized (any fires have been extinguished, ignition sources have been eliminated, and all spills and leaks have been controlled, as necessary)
- When flammable liquids are involved, ensure that back-up crews with a minimum of 1¾”handline is in place to protect personnel involved in bonding and grounding operations.
- When combustible liquids are involved, ensure that a back-up crew with a minimum of a dry chemical fire extinguisher is in place to protect personnel involved in bonding and grounding operations.
- An escape signal and path for personnel working in the immediate hazard area shall be established prior to operations.
- Air-monitoring of the hazard areas shall be performed continuously
- Ensure that all personnel remain alert throughout operation.
- ONLY trained personnel shall perform bonding and grounding procedures.
- All unnecessary personnel should leave the area during product transfer operations.
- Grounding rod placement shall be located in a remote and safe environment away from hazard area; this should be determined by use of air monitoring devices, wind direction, soil, topography, and weather conditions.
- All pump-off appliances, recovery metal buckets, metal drums, and other devices must be bonded to damaged container.
- All appliance bonding operations, the first connection must always start at the damaged

container.

- All cables must be placed on a clean surface, grease free, paint free surface.
- As a reminder hoses with built-in wire may not provide bonding due to a broken or wire not tied into coupling.
- Plastic containers are not to be used for recovery containers.
- Guard rail post, telephone or electrical pole support rod may be used if deep enough to carry away the charge
- Periodically monitor and/or check with ohm meter bonding and grounding cable connections to ensure a good grounding system.

Personnel Protective Equipment and Respiratory Protection

All personnel entering the work area to perform bonding and grounding operations shall always utilize personal protective clothing.

Minimum PPE shall consist of:

- PBI and/or Nomex jump suit
- Tyvek or Tychem garment
- Disposable gloves (Nitrile or best compatible)
- Latex booties
- Eye protection

Initial Response Actions

1. Establish entry team for bonding and grounding operations.
2. Approach hazard area with caution, always approach uphill and upwind when possible.
3. Ensure back-up crew is in place with fire protection measures, if required.
4. Placement of grounding rods should be a minimum of 4 ft. in depth into soil.
5. Continuous perimeter monitoring should be performed to determine possible change in site conditions.
6. Grounding connection # 1 shall be made at damaged container, then moved outward and away from damaged container and grounding connection # 2 made to ground site.
7. Bonding connection # 3 shall be made at damaged container, then moved outward and away from damaged container and bonding connection # 4 made to pump-off container.
8. Grounding connection # 5 can be made anytime prior to pump-off operations to pump-off container, then moved outward and away from pump-off container and grounding connection # 6 made to ground site.
9. Prior to transfer operations, allow a 5 minute rest period, check system with ohm meter (25 or less ohm resistance is acceptable).
10. No transfer operation shall be started until system resistance is 25 or less.
11. Additional grounding rods, water and/or salt water may be added to assist with resistance reduction.
12. Bonding and grounding system should be checked for possible wire break and or accidental disconnection if resistance requirement is not established. [back to contents page]

[SOG 14] CHEMICAL PROTECTIVE CLOTHING

Purpose

To Provide Hazardous Materials personnel guidance for inspection and use of chemical protective garments.

Protective Ensembles

NFPA 1991 -Vapor Protective Suits

Our standard NFPA 1991 Vapor Protective Suit is the Kappler Frontline 500. No other NFPA 1991 suit is allowed to be carried on any unit under any circumstances without the prior permission of the Hazmat Team Leader.

NFPA 1992 -Liquid Protective Suits

Our standard NFPA 1992 Liquid Protective Suits is the Kappler Zytron 300 coverall. No other NFPA 1992 suit is allowed to be carried on any unit under any circumstances without the prior permission of the Hazmat Team Leader.

NFPA 1994 - Class 2/3 Suits

We use three different NFPA 1994 Class 2 suits none are stored on the unit.

1. The MT94 by Lion Apparel
2. Dupont TPF 3
3. Kappler Class 2

DUPONT Thermo Pro Garments

This garment is NOT certified for chemical protection. It is on the unit for the sole purpose of fuel transfer operations. They may only be used for fuel transfer operations. After use they may be cleaned dried and re-used. They must be inspected at least annually for visible wear, deterioration, or other flaws that render it unsafe for fuel transfer operations. If the garment does not pass visual inspection it must be removed from service and the Hazmat Team Leader must be notified before the garment is destroyed.

Other

There is an assortment of various low level protective suits, generally designed to protect against nuisances such as dust, grime, blood, and similar exposures. They are not to be used to protect against any chemical hazard. Examples of these are Tychem QC and Tychem SL coveralls.

PROTECTIVE FOOTWEAR

There are three types (brands) of protective footwear provided for use on the hazmat unit:

1. Tingley Hazproof Boots (ORANGE)-the primary boot for all NFPA1991 & NFPA1992 ensembles. They may not be used for any other purpose including training.
2. Hazmax (GREEN)-the primary boot for hydrocarbon spills. No hazmat team member may wear their leather structural firefighting boot on a hydrocarbon call. These boots must be cleaned with soap and water after each use. They may not be used for any other purpose including training.
3. Generic Over boot (BLACK)- these boots only come in one size. They are only for mercury and other calls that involve walking through people's homes. This boot is as much for private property protection as our protection. These boots must be cleaned with soap and water after each use. They may not be used for any other purpose including training. These boots replace disposal yellow over boots. The yellow over boots will likely not be replaced as they are used.

GLOVES

The hazmat unit will continue to stock a variety of gloves. However, members must be careful not to substitute medical examination gloves for hazmat entry gloves. A glove chart must be consulted and expected breakthrough time considered as part of an holistic approach to personal protection.

Hazmat gloves, like boots and suits, are not disposable. They should be treated as multi-use single exposure items. [back to contents page]

GENERAL CARE PROTOCOLS

1. **No SUIT on any apparatus that is slated for emergency use may be used for any purpose other than emergency incidents.**
2. **Whenever there is a discrepancy between this document and the manufacturer's written direction, the manufacturer's written direction will be followed.**
3. Each NFPA 1991 suit will MUST be assigned a unique identity.
4. Any NFPA 1991 suit that does not have a unique identity MUST be immediately removed from service until its identity and inspection history is verified. The
5. Each NFPA 1991 suit will be stored in its assigned bag.
6. Each NFPA 1991 suit will be sealed when placed on the unit with a "zip tie" or comparable tag that prevents the bag from being opened accidentally.
7. The presence of each assigned item of each NFPA 1991 suit will be noted and recorded at or near the beginning of each shift as part of the routine apparatus check.
8. Each NFPA 1991 suit has, in its assigned bag a booklet and tag. You must use the booklet to record each time the bag is opened and the suit is used. The tag will be used to record annual pressure testing.
9. Each NFPA 1991 suit MUST be inspected annually and after each use.
10. The On-Duty HMO MUST ensure that he/she has the assigned compliment of NFPA 1991 suits each shift
11. All other suits MUST remain in their assigned bag unopened until they are needed (the sole exceptions are the thermo pro suits that are just rolled and placed in the compartment.
12. Any and all discrepancies must be reported to the Hazmat Team Leader immediately upon discovery.
13. The On-Duty HMO must ensure that there are no items of CPC on the unit with any noted defects.

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