

BROOKHAVEN NATIONAL LABORATORY Safety & Health Services Division INDUSTRIAL HYGIENE GROUP Standard Operating Procedure	NUMBER IH105150
	REVISION FINAL Rev2
Subject: Chemical HazMat Emergency Response Personal Protective Equipment Selection	DATE 05/27/08
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1.0 Purpose & Scope

Purpose: The purpose of this procedure is to provide guidance to protect workers using PPE from the presence of chemicals released in emergency response incidents. The value of this SOP is the pre-determination of appropriate actions for use in emergency response releases at BNL.

The specifications can be used by IH Group professionals in making recommendations for PPE use by other BNL and non-BNL organizations.

This SOP cannot anticipate all hazards and exposure scenarios that may be encountered in an actual emergency. Thus this SOP does:

- Not establish any mandatory action that must be taken.
- Not limit actions that in the judgment of the IHG personnel are prudent and necessary.
- Not limit the professional judgment of the IH Group personnel responding to an event.
- Not authorize IHG personnel to place themselves or others at an unacceptable or preventable risk, even if the failure to do a particular action (that the IHG personnel at the scene believes is not prudent and safe) would not follow a pre-defined BNL SHSD procedure.

2.0 Responsibilities

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2.1 SHSD personnel assigned a role in the BNL Emergency Plan are responsible to act within the defining SOPs established by the IH Group and within the overall requirements in the BNL Emergency Plan and OSHA HazWoper requirements.

3.0 Definitions

none

4.0 Prerequisites

none

5.0 Precautions

Heat Stress is an issue in workers wearing PPE. Follow the prevention measures in the BNL training course *Heat Stress Prevention*.

The hazards and risks involved in the SHSD IH Group's role in Emergency Response is described in [SHSD-JRA-08](#).

6.0 Procedure

The IH Group serves as technical advisors to the Incident Commander (IC) at an event. The IH Group performs limited functions in the area with exposure potential under the direction of the Incident Commander.

- 6.1 **Follow IH 105100:** Determining what hazard is involved and the appropriate response action.
- 6.2 **Select the appropriate PPE:** Use the following logic chart in *Attachment 9.1* and [Forsberg & Mansdorf: Quick Reference Guide to Chemical Protective Clothing, 5th Ed., 2007](#). (Copy is in the SHSD IH Group Emergency Response Brief Case ("football").
- 6.3 **Downgrade PPE when appropriate:** As conditions change or additional information is obtained, reselect the PPE using the new criteria.

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7.0 Implementation and Training _IHG personal who perform emergency response work that requires PPE must meet all training requirements and medical qualification for the SHSD JTA for IH [Emergency Responder](#).

8.0 References

- 8.1 Forsberg & Mansdorf: *Quick Reference Guide to Chemical Protective Clothing, 5th Ed., 2007.*
- 8.2 *DOE Guidelines on the Selection of Personal Protective Equipment.*

9.0 Attachments

- 9.1 *BNL Chemical Protective Clothing Selection Guide Matrix for Chemical HazMat Incident*
- 9.2 *Recommended Glove /Suit Material for common BNL chemicals*

10.0 Documentation

Document Development and Revision Control Tracking		
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Revision Log
Purpose: <input type="checkbox"/> Temporary Change <input type="checkbox"/> Change in Scope <input checked="" type="checkbox"/> Periodic review <input type="checkbox"/> Clarify/enhance procedural controls Changed resulting from: <input type="checkbox"/> Environmental impacts <input type="checkbox"/> Federal, State and/or Local requirements <input type="checkbox"/> Corrective/preventive actions to non-conformances <input checked="" type="checkbox"/> none of the above Section/page and Description of change: Triennial Review. Minor text changes to Scope. Added link to JRA in Section 5. Removed text on JTA in Section 7. Revised Section 10 to current format. SME Reviewer/Date: R. Selvey 03/30/07 (signature on file)
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Attachment 9.1

BNL Chemical Protective Clothing Selection Guide Matrix for Chemical HazMat Incident

PPE Ensemble Matrix

Contaminant & Concentration	Respirator	Skin Protection	Eye
All Unknown, i.e. • Unknown identity of chemical & • Unknown concentration	Level A: SCBA	Level A: Total Encapsulating Suit	Full Face Mask
• Known Chemical but • Unknown concentration	Level A: SCBA	• Level A: Total Encapsulating if corrosive or penetrates through skin, • Other wise TEC judgment for Level B	Full Face Mask
• Known Chemical & • Known concentration	• Level A: SCBA if >IDLH • Level B: APR/APR if <IDLH	• Level A if skin hazard • Level B if no skin hazard	Full Face Mask

Level A: PPE offering full respiratory and skin protection, specifically a fully encapsulating suit and internal SCBA or Airline respirator. Gloves taped at wrists. Penetration resistance at the feet is supplied by the suit, but it is common for abrasion resistant shoes or boots to be worn outside the suit to protect it while working.

Level B: PPE offering full respiratory protection (external SCBA or Airline respirator) and a high skin protection- full suit with hood and foot covering. Gloves taped at wrist. The suit may or may not include foot covering. If not, penetration resistance at the feet is supplied by taping a impermeable boot to the suit.

Level B-modified: PPE offering full respiratory protection (SCBA, Airline, PAPR, or APR as appropriate) and a limited skin protection- full suit with or without hood. Boots or foot covering. Gloves taped at wrist.

Level C: PPE offering respiratory protection (PAPR or APR if required) and limited skin protection- suit with or without a hood. Gloves typically not taped at wrist. Boots typically not covered.