# Table of Contents

Respiratory Protection

- Respirator Protection Factor 2
- Respiratory Protection Lab 3
  - Donning and Doffing SCBA 4
  - Fit testing an APR 5
  - Inspecting and Cleaning Respirators 7
  - Wearing an airline with escape unit 8

PPE

- Levels of PPE 9
- Don, Doff, Inspect Lab 10
  - Don and Doff Level A 11
  - Don and Doff Level B 13
  - Don and Doff Level C 14
  - Inspect PPE 15

Other PPE that may be required 16
Respiratory Protection Exercises

**Exercise - Respirator Protection Factor Exercise**

Working in groups, perform the following calculations:

You are working when a leak occurs which has an ammonia concentration of 3,500 ppm. What is the minimum type of respiratory protection that can be *safely* used?

Airborne concentration______________________________

Permissible Exposure Limit (PEL) for chemical _______________________________

Immediately Dangerous to Life or Health (IDLH) for chemical __________________

Type of respirator_______________________________
Exercise – Respiratory Protection Lab

The purpose of this laboratory is to give you the opportunity to wear and become familiar with SCBAs, air-purifying respirators (APRs), egress units, and equipment cleaning and inspection procedures. This lab is broken down into four rotating stations:

1. Donning and doffing SCBA
2. Fit-testing an APR
3. Inspecting and cleaning respirators
4. Wearing an airline with escape unit

Copies of Lab Performance Checklists for this exercise are provided on the following pages. However, the instructor may hand out duplicates of these checklists which you will complete, have signed by the instructor, and turn in at the end of the lab. The training center retains this information with your other training records. Therefore, you may want to record your lab results separately for your personal records.
Name: _______________________

Respiratory Protection Lab Performance Checklist
Station 1: Donning and Doffing an SCBA

1. What brand of SCBA and size of facepiece did you wear?
   Brand ___________________________ Size _____________________________

2. Please list the brands and sizes of facepieces you tried that could not pass the negative-pressure fit test.
   Brand ___________________________ Size _____________________________
   Brand ___________________________ Size _____________________________
   Brand ___________________________ Size _____________________________

3. Before donning the SCBA, did you check your:
   a. Cylinders? -- ☐ Yes ☐ No
   b. Alarm? -- ☐ Yes ☐ No
   c. Regulator gauge? -- ☐ Yes ☐ No
   d. Straps? -- ☐ Yes ☐ No

4. Did you don the SCBA as you were instructed? -- ☐ Yes ☐ No

5. While wearing the SCBA, did you:
   a. Check the bypass valve? -- ☐ Yes ☐ No
   b. Wear the SCBA for at least 7 minutes? -- ☐ Yes ☐ No
   c. Try to communicate with your buddy? -- ☐ Yes ☐ No

6. While wearing the SCBA, did you do an assigned task? -- ☐ Yes ☐ No
   If yes, describe the task: ____________________________________________
   ____________________________________________
   ____________________________________________

7. After doffing the SCBA, did you:
   a. Extend the harness straps? -- ☐ Yes ☐ No
   b. Extend the facepiece straps? -- ☐ Yes ☐ No
   c. Clean the facepiece? -- ☐ Yes ☐ No
   d. Check the cylinder? -- ☐ Yes ☐ No
   e. Did the cylinder need to be changed? -- ☐ Yes ☐ No
   f. If yes, did you have it changed? -- ☐ Yes ☐ No

8. How long did you wear the SCBA? _____ minutes

Date _______________ Instructor’s Signature______________________________
Name: ______________________________

Respiratory Protection Lab Performance Checklist
Station 2: Fit-Testing an APR

1. Please check any of the following items that you wear.
   - [ ] Prescription glasses
   - [ ] Dentures
   - [ ] A beard
   - [ ] Contact lenses
   - [ ] Hairstyle that prohibits a good face seal

2. Did you do a negative-pressure fit check?  [ ] Yes  [ ] No

3. Did you do a positive-pressure fit check?  [ ] Yes  [ ] No

4. Did you go into a test chamber?  [ ] Yes  [ ] No
   
   If yes, which type of chamber?
   - [ ] “Banana oil”
   - [ ] Smoke
   - [ ] Both
   - [ ] Other

5. What brand and size of air-purifying respirator did you wear?
   
   Brand _______________________ Size ______________________
   
   Full-face _____________________ Half-face____________________
Name:___________________________

Respiratory Protection Lab Performance Checklist Station 2 (cont.):

**Fit-Testing an APR**

6. Please list the brands and sizes of respirators you tried that could not pass the fit test.

   Brand _____________________ Size_____________________
   Brand _____________________ Size_____________________
   Brand _____________________ Size_____________________
   Brand _____________________ Size_____________________
   Brand _____________________ Size_____________________

7. Did you wash your respirator during this lab?-----------------------------
   □ Yes □ No

   If yes, check the supplies that you used.

   □ Towelette
   □ Wash basin
   □ Other

8. How long did you wear the respirator? _____ minutes

Date ________________ Instructor’s Signature: _______________________________
Name:___________________________

Respiratory Protection Lab Performance Checklist

Inspecting and Cleaning Respirators

Daily Maintenance of Your Respirator:

1. Did the instructor tell you how to wash your respirator?-------- □ Yes □ No
2. Did you clean your respirator? ------------------------------------------ □ Yes □ No
3. Did you see a disassembled respirator and all its parts? -------- □ Yes □ No
   If yes, did someone in the lab reassemble the respirator? ------ □ Yes □ No
4. Did someone in your lab inspect a respirator? --------------------- □ Yes □ No
5. Were defects found during the inspection?------------------------ □ Yes □ No
   If yes, describe the defects:_____________________________________
   ________________________________

OSHA-Required Inspections of SCBA:

6. Was the inspection procedure that must be done at least once per month described? ------------------------------ □ Yes □ No
7. Were you shown the hydrostatic test date? ------------------------ □ Yes □ No
8. Did you see someone demonstrate inspection of an SCBA according to the manufacturer’s guidelines? ------------------------------ □ Yes □ No

Date ______________ Instructor’s Signature: _______________________________
Name: __________________________

Respiratory Protection Lab Performance Checklist

Wearing an Air Line with Escape Unit

1. Did the station leader demonstrate how to hook up and use the unit? ---☐ Yes ☐ No

2. Did the station leader demonstrate how to switch to the 5-minute escape bottle?
   ──────────────────────────────────────────────────────────────────────────☐ Yes ☐ No

3. Did one of the trainees in the lab wear an egress unit? ──────────☐ Yes ☐ No

4. Did you wear the unit? ..........................................................................................☐ Yes ☐ No

5. Did a trainee who wore the egress unit switch to the 5-minute escape bottle?
   ──────────────────────────────────────────────────────────────────────────☐ Yes ☐ No

6. Please indicate which level of protection is provided by an air-line egress unit.
   ☐ A ☐ B ☐ C

Date ______________ Instructor’s Signature: ________________________________________
PPE Exercises

Exercise - Levels of PPE

This exercise will allow you to apply knowledge gained from this section to a “real-life” situation. The exercise involves determining what level of PPE would be required for different situations. Although you will usually be provided specific PPE selected by the safety and health officer, this exercise gives you an opportunity to determine the basic level of protection that is needed.

For each situation, state the appropriate level of PPE and the reason for your decision. If you believe additional information is needed, list it.

1. At XYZ Dumpgrounds, 15 barrels are unearthed and identified as dioxane. What level of protection should be used to remove the barrels?

2. Spent chlorine cylinders are being off-loaded from a semi into a staging area. What level of protection should be worn?

3. You are to do initial decontamination of a pump and piping area “crusted over” with corrosion before the millwrights begin dismantling the unit. What level of protection is needed?

4. You are scheduled to clean an empty culvert, where oxygen concentrations have been measured at 18% in the past. What level of protection should be worn?

5. You are assisting the safety coordinator with monitoring air concentrations around a waste lagoon, and you are told to draw the necessary equipment from the tool crib area. What PPE and safety equipment are needed?

6. You are moving 55-gallon drums of hydrochloric acid. During the past two days, workers have reported that the drum integrity is poor. What level of protection should be worn?
Exercise – Don, Doff, Inspect Lab

The following laboratory provides an opportunity to:

1. Don and doff Level A protection
2. Don and doff Level B protection
3. Don and doff Level C protection
4. Inspect and maintain PPE

Copies of Lab Performance Checklists for this exercise are provided here; however, the instructor will hand out duplicates of these checklists which you will complete, have signed by the instructor, and turn in at the end of the lab. The training center retains this information with your other training records. Therefore, you may want to record your lab results in your manual for your personal records.
Name: ____________________________________

Buddy’s Name: ______________________________

PPE Performance Checklist
Station 1: Donning and Doffing Level A

Preparing to Don the Equipment

1. List the size that you chose for all of the following equipment. If you did not wear the listed equipment, put an “X” on the line.
   a. Disposable suit Size _____
   b. SCBA Facepiece Size _____ Brand__________________________
   c. Level A training suit Size _____
   d. Boots Size _____
   e. Inner gloves Size _____
   f. Outer gloves Size _____
   g. Hard hat Size = adjustable

List any equipment for which you could not find a proper size, and state whether you needed a larger or smaller size.

Type of Equipment ______________________ Size_________________
Type of Equipment ______________________ Size_________________
Type of Equipment ______________________ Size_________________

2. Did you inspect the equipment before donning it?.............................. Yes  No
3. Did you and your buddy help each other get dressed? ……………... Yes  No

Donning the Equipment

4. Did you do a negative-pressure check of your facepiece? ............... Yes  No
5. Did you check the SCBA by-pass valve before you put on Level A?..  Yes  No
6. Did your buddy ask if you could breathe OK before your suit was closed??
.......................................................................................................................................................................................................................................................................................................................................................................................................................................................... Yes  No
PPE Performance Checklist  
Station 1: Donning and Doffing Level A (Continued)

**Hooked to Air in Level A**

7. Did your buddy check your suit’s sealing points (zipper, cuff, ted.) after your suit was closed? ………………………………………………………………………………☐ Yes ☐ No

8. Did you and your buddy review the communications system after your suit was closed? ………………………………………………………………………………☐ Yes ☐ No

9. Did you withdraw your hand from the sleeve of the suit and turn on the SCBA emergency by-pass valve? ………………………………………………………………………………☐ Yes ☐ No

10. Did you have to withdraw your hand and defog your face shield?? ☐ Yes ☐ No

11. Did you do an assigned task? ……………………………………………………………………………………………………☐ Yes ☐ No

If yes, describe the task:______________________________________________

__________________________________________________________________

**Doffing the Equipment**

12. Did you touch the outside of your suit as it was being removed? …☐ Yes ☐ No

13. Did you remove your inner gloves properly? ……………………………………………………………………………………………………☐ Yes ☐ No

14. Did you dry your suit as instructed? ……………………………………………………………………………………………………☐ Yes ☐ No

15. After doffing the SCBA, did you:
   a. Extend the harness straps? ……………………………………………………………………………………………………☐ Yes ☐ No
   b. Extend the facepiece straps? ……………………………………………………………………………………………………☐ Yes ☐ No
   c. Clean the facepiece? ……………………………………………………………………………………………………………☐ Yes ☐ No
   d. Check the cylinder? ……………………………………………………………………………………………………………☐ Yes ☐ No

   If yes, did the cylinder need to be changed? …………………………………………………………………………………………☐ Yes ☐ No

   If yes, did you change it or have it changed? …………………………………………………………………………………………☐ Yes ☐ No

16. How long did you stay in Level A? _____ minutes

    Date ____________ Instructor’s Signature: ____________________
Name: _________________________________

Buddy’s Name: ___________________________

PPE Performance Checklist

Station 2: Donning and Doffing Level B

1. List the size that you chose for all of the following equipment. If you did not wear the listed equipment, put an “X” on the line.
   a. Chemical-protective clothing Size _____
   b. Air-purifying respirator Size _____ Brand____________________
   c. Boots Size _____
   d. Inner gloves Size _____
   e. Outer gloves Size _____
   f. Hard hat Size = adjustable

List any equipment for which you could not find a proper size, and state whether you needed a larger or smaller size.

Type of Equipment ________________ Size_____________________________
Type of Equipment ________________ Size_____________________________
Type of Equipment ________________ Size_____________________________

2. Did you inspect the equipment before donning it? ……………………..
   □ Yes □ No

3. Did your buddy:
   a. Make pull tabs when taping your boots/pants? ………………………… □ Yes □ No
   b. Make pull tabs when taping your gloves/sleeves? …………………….. □ Yes □ No
   c. Review the communications system with you? ………………………… □ Yes □ No

4. Did you do an assigned task? …..………  …………………………….. □ Yes □ No
   If yes, describe the task: _____________________________________________
   ___________________________________________________________________

5. After doffing the SCBA, did you:
   a. Extend the harness straps? ………………………………………… □ Yes □ No
   b. Extend the facepiece straps? ………………………………………… □ Yes □ No
   c. Clean the facepiece? ……………………………………………… □ Yes □ No
   d. Check the cylinder? ……………………………………………….. □ Yes □ No
       If yes, did the cylinder need to be changed? ………………………… □ Yes □ No
       If yes, did you change it or have it changed? ………………………… □ Yes □ No

6. How long did you stay in Level B? _____ minutes

Date ________________ Instructor’s Signature: _____________________________
Name: _________________________________
Buddy’s Name: _________________________________

**PPE Performance Checklist**

**Station 3: Donning and Doffing Level C**

1. List the size that you chose for all of the following equipment. If you did not wear the listed equipment, put an “X” on the line.

   - Chemical-protective clothing Size _____
   - Air-purifying respirator Size _____ Brand
   - Boots Size _____
   - Inner gloves Size _____
   - Outer gloves Size _____
   - Hard hat Size = adjustable

   List any equipment for which you could not find a proper size, and state whether you needed a larger or smaller size.

   - Type of Equipment _______________________ Size_________________
   - Type of Equipment _______________________ Size_________________

2. Did you inspect the equipment before donning it?..........................
   - Yes  ❑  No ❑

3. Did your buddy:
   - a. Make pull tabs when taping your boots/pants? …………………… ❑ Yes ❑ No
   - b. Make pull tabs when taping your gloves/sleeves? ……………… ❑ Yes ❑ No
   - c. Review the communications system with you? …………………… ❑ Yes ❑ No

4. Did you do an assigned task? ……………………………………
   - Yes  ❑  No ❑
   - If yes, describe the task:_____________________________________________
   -________________________________________________________________

5. Did you take off the suit in a manner that would protect you and the other workers around you from contamination? …………………………………… ❑ Yes ❑ No

6. Did you remove your inner gloves properly? ……………………………… ❑ Yes ❑ No

7. When removing your respirator:
   - a. Were you wearing your inner gloves? ……………………………… ❑ Yes ❑ No
   - b. Did you extend your facepiece straps? ……………………………… ❑ Yes ❑ No
   - c. Did you wash the respirator? ………………………………………… ❑ Yes ❑ No

8. How long did you stay in Level C? _____ minutes

   Date ______________  Instructor’s Signature: ____________________________
PPE Performance Checklist
Station 4: Inspection of PPE

1. Did the instructor tell you how to wash your respirator? □ Yes □ No

2. Did you clean your respirator? □ Yes □ No

3. Were inspection procedures described for:
   a. Boots? □ Yes □ No
   b. Outer gloves? □ Yes □ No
   c. Hard hats? □ Yes □ No
   d. Reusable suits? □ Yes □ No

4. Did you inspect the gloves? □ Yes □ No

5. Did you find defects in the gloves? □ Yes □ No
   If yes, describe the defects: ______________________________________

6. Did you inspect the suit? □ Yes □ No

7. Did he/she find defects in the reusable suit? □ Yes □ No
   If yes, describe the defects: ______________________________________

8. Did you observe the leak-test procedure for a Level A suit? □ Yes □ No

Date _____________ Instructor's Signature: _______________________________
Exercise – Other PPE Requirements

In this exercise, you will work in groups to complete a work sheet on other PPE requirements. One member of the group should prepare the report back from the worksheet.

Standard title: ____________________________________

What are the criteria to determine need for the PPE?

What steps must be taken to fit the PPE to the worker?

What training is required? How often?

Are there medical restrictions to use?

What are the limitations?

Where is the PPE stored?