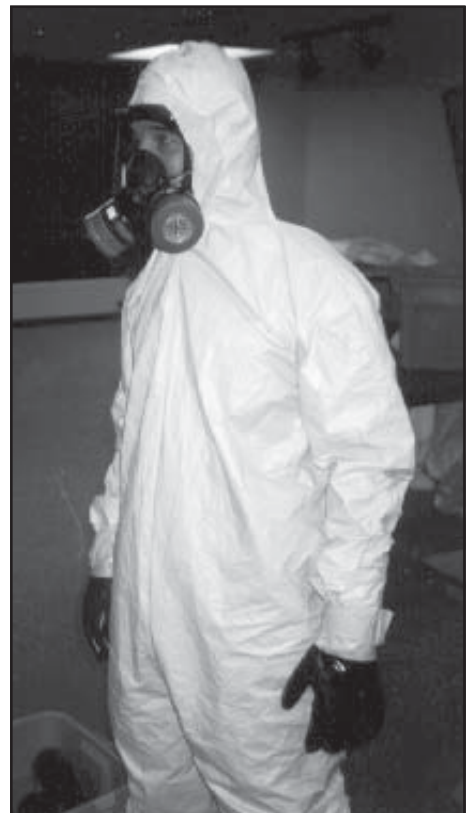


Section 17

Hands-on Practice

Purpose

To gain hands-on experience dressing out in ppe and decontamination.



Section 17

**What you will find
in this section...**



Page	Fact Sheet	Title
17-3	---	Task 1 - Tabletop Exercise
		Strip-It, Material Safety Data Sheet
17-13	---	Task 2 - Hands-on Practice
17-19	---	Checklist - Level C Dress Out
17-21	---	Checklist - Level B Dress Out
17-25	---	Task 3 - Debriefing
17-26	---	Summary

Task 1

- **Review the following information.**
- **Complete a work plan for your team.**

The whole class is part of the Operations-level Spill Response Team at Make-A-Mess Parts Supplier. A warehouse worker has just reported a spill at the drum clean-out area. The class will develop a plan of action to control access to the emergency scene, confine the spill to a small area and keep it out of the sewer system, and lock out any sources feeding the spill.

The Trainers will begin by:

- ◆ Reading the description of the spill.
- ◆ Showing you on the flip chart how the spill scene is laid out.
- ◆ Dividing you into three work teams.

Spill at Make-A-Mess, Inc.

The drum clean-out area is located outside, about 25 ft. from the main facility. Containers get rinsed out here with a cleaning solution called Strip-It. The cleaning solution is fed into the containers from a raised fill tank that holds about 500 gallons. This tank is fed from a much larger tank (5000 gallons) in the bulk storage area, about 50 ft. away.

The raised tank is held up by a metal platform that looks very rusty and has been “bumped” a few times by fork-trucks. Today, the platform finally gives way and collapses. The fill tank falls on the ground and is leaking. The pipe that connects the fill tank to the large storage tank is also leaking.

Task 1

continued

- **Tabletop Exercise**
- **Review the following information.**
- **Complete a work plan for your team.**

The MSDS for Strip-It says that it contains:

> (greater than) 20% Potassium Hydroxide

< (less than) 10% Methyl Cellosolve

Balance is water

As a team, please review the following information and fill out the work plan for your assigned team. Remember to pick a spokesperson for your group.

The three teams are:

Team 1: Decontamination Team (will run the decon line).

Team 2: Spill Confinement Team (will construct a dike to hold spill and block a manhole to protect sewer system)

Team 3: Lockout Team (will lockout valve on feed line and other ignition sources.)



STRIP-IT

SAFER CHEMICAL COMPANY MATERIAL SAFETY DATA SHEET

SECTION I

PRODUCT NAME OR NUMBER (as it appears on label): STRIP-IT (Low-foaming hot caustic stripper)	
MANUFACTURER'S NAME Safer Chemical Company 10000 Hazmat Avenue Anywhere, Michigan 48211	Only in the event of CHEMICAL EMERGENCY, Spill, Leak, Fire, Exposure, or Accident Call (313) 824-0000 Safer Chemical Co. (800) 424-9300 Chemtrec - Day or Night (202) 483-7616 Call collect from outside USA
HAZARDOUS MATERIALS DESCRIPTION, PROPER SHIPPING NAME, HAZARD CLASS, HAZARD ID NO (49 CFR 172.101): Potassium Hydroxide, Corrosive Material	
ADDITIONAL HAZARD CLASSES (as applicable): UN 1824, JMCO Class 8	
CHEMICAL FAMILY: Caustic Alkalis	FORMULA: Water-based Paint Stripper

SECTION II - INGREDIENTS (List Ingredients)

CAS REGISTRY NO	%W	CHEMICAL NAME(S)
1310-58-3	>20	Potassium Hydroxide
109-86-4	<10	Methyl Cellosolve**
7432-18-5	Balance	Water and proprietary ingredients

SECTION III - PHYSICAL DATA

BOILING POINT:	ABOVE 212°F	SPECIFIC GRAVITY (H ₂ O=1):	1.176	pH	Highly Alkaline 14.0
VAPOR PRESSURE:	at 25°C [x] mmHg	0.06	PERCENT VOLATILE BY VOL:	Ex. H ₂ O	>50%
	PERCENT SOLID BY WEIGHT (%)	<30			
VAPOR DENSITY (AIR = 1):	5.62	EVAPORATION RATE (Butyl Acetate = 1)	<0.01		
	SOLUBILITY IN WATER:	Complete			
APPEARANCE AND ODOR:	Hazy pale white liquid, characteristic odor				
IS MATERIAL:	[LIQUID]	SOLID	GAS	PASTE	POWDER

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: Open Cup Method 260°F	FLAMMABLE LIMITS	LEL	OEL
	Undetermined		
EXTINGUISHING MEDIA:	Water fog, Alcohol, Foam CO ₂ and Dry Chemical.		
SPECIAL FIRE FIGHTING PROCEDURES:	In water solution caustic can react with amphoteric metals (such as zinc) generating hydrogen which is flammable and/or explosive when ignited.		
UNUSUAL FIRE AND EXPLOSION HAZARDS:	none		

SECTION V - HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE (Conditions to Avoid): Dust or Concentrated mist may cause damage to upper respiratory tract and even to the lungs proper. Ranges from mild irritation to severe pneumonitis. SKIN: Burn likely. Main effect: tissue damage.
PERMISSIBLE EXPOSURE LIMIT (PEL): The OSHA PEL is 2 mg/m ³ for dusts and mists based on sodium hydroxide.
PRIMARY ROUTES OF ENTRY: Inhalation () Skin Contact (X) Other (Specify):
EMERGENCY AND FIRST AID PROCEDURES: SKIN: Flush with large quantities of soap and water for at least 30 minutes. EYES: Immediate irrigation with water for 30 minutes. INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. INGESTION: Do not induce vomiting. Give large quantities of water. Never give anything by mouth to an unconscious person. In all the above cases, call a physician.

STRIP-IT

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE	CONDITIONS TO AVOID: Product absorbs carbon dioxide from the air
	STABLE (X)	
INCOMPATIBILITY (Materials to Avoid)	Acid.	Product is a strong alkali and may react violently with acid, a number of organic compounds, and amphoteric metals.
HAZARDOUS DECOMPOSITION PRODUCTS.	None Determined	
HAZARDOUS	MAY OCCUR	CONDITIONS TO AVOID: When handling
POLYMERIZATION	WILL NOT OCCUR (X)	liquid, avoid contact with such metals as aluminum, leather, wool, tin, and zinc

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Dilute and neutralize with diluted acid. Protect clothing and act cautiously.
WASTE DISPOSAL METHOD: Follow local, state, and federal regulations.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify Type): In absence of proper environmental control, use NIOSH approved respirator.
VENTILATION: LOCAL EXHAUST (Specify Rate): Recommend control to suggested guide.
MECHANICAL (General) (Specify Rate): Required at elevated temperatures.
PROTECTIVE GLOVES (Specify Type): Impervious, such as neoprene. EYE PROTECTION (Specify Type): Chemical Safety Glasses.
OTHER PROTECTIVE EQUIPMENT: As needed to avoid physical contact.

SECTION IX - SPECIAL PRECAUTIONS

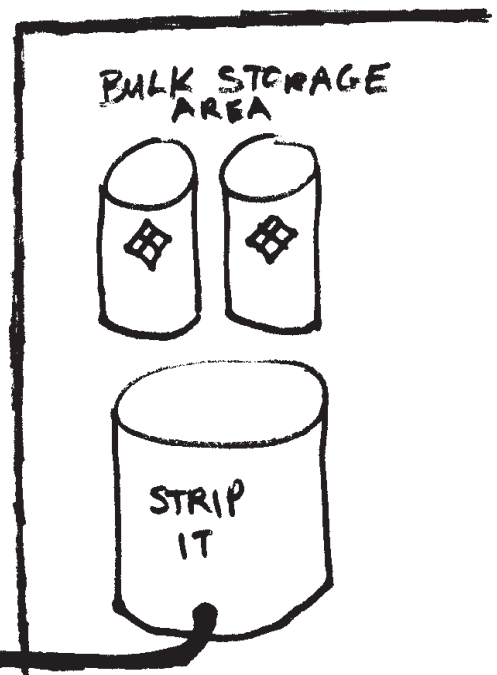
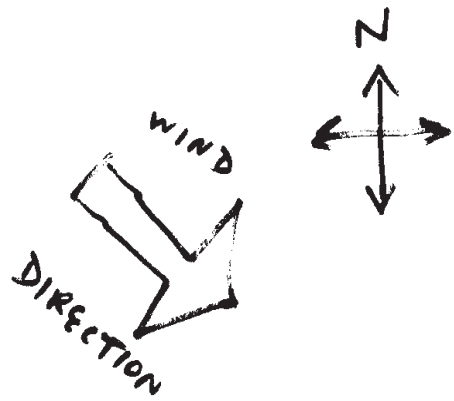
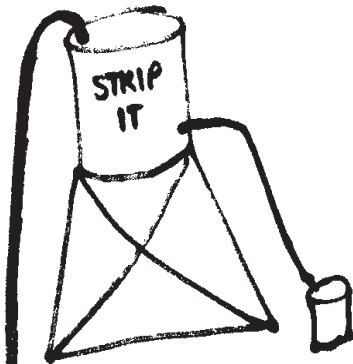
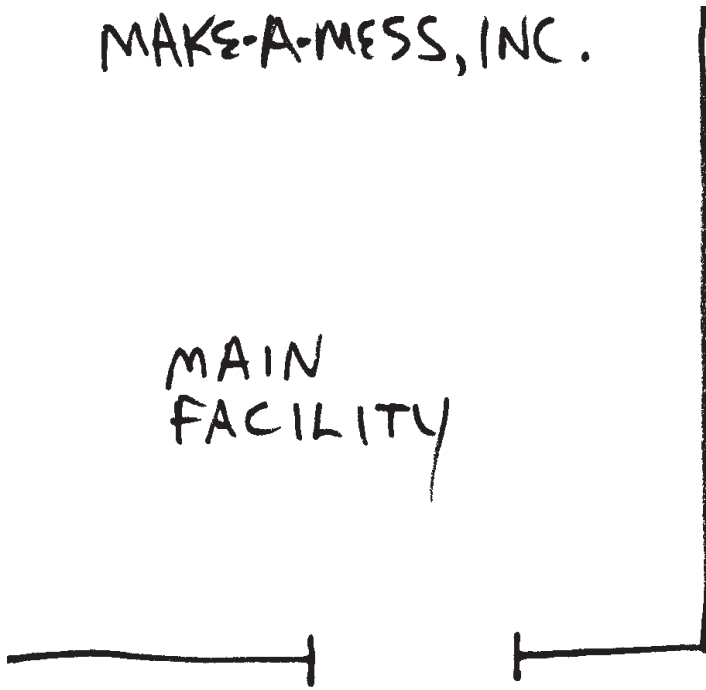
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Prevent contact. Avoid storing next to strong acids. Dissolving in water generates heat. Do not consume food, drink or tobacco to avoid contamination. Wash thoroughly after handling.
OTHER PRECAUTIONS: Viscous slippery solution. Store above freezing point. Empty containers retain residues and label hazard precautions. Empty containers should be completely drained, properly bunged, and promptly returned to a drum reconditioner.
PLEASE COMPLETE QUESTIONNAIRE Name (Print): Gregory Work
AND RETURN TO: Title: Technical Support
Date Issued: 25-JUN-26 Supersedes: 7-MAR-95

***Section 313 Supplier Notification: This product contains the above substance subject to the reporting requirements of title III of SARA of 1986 and 40 CFR 372.

Information presented herein is accurate and reliable to the best of our knowledge and belief but is not guaranteed to be so. Nothing herein is to be construed as recommending any practice or any product in violation of any patent or in violation of any law or regulation. It is the user's responsibility to determine for himself the suitability of any material for a specific purpose and to adopt such safety precautions as may be necessary. We make no warranty as to the results to be obtained in using any material, and since conditions of use are not under our control, we must necessarily disclaim all liability with respect to the use of any material supplied by us.

MAKE-A-MESS, INC.

MAIN FACILITY

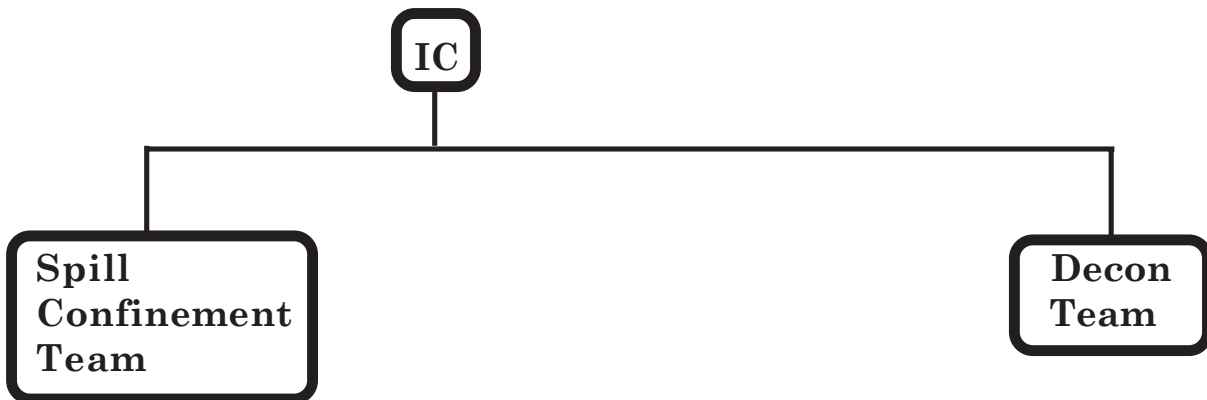


Task 1

continued

- Review the following information.
- Complete a work plan for your team.

Incident Command Structure



Task 1

continued

- Review the following information.
- Complete a work plan for your team.

Team 1: Spill Confinement Team

Your job is to build a dike well ahead of the spill to keep it in a small area. You will also have to block the manhole cover and any other storm drains, etc. that are found during the size-up.

Work Plan:

1. What chemical hazards do you expect to find from the spill of Strip-It? Use the NIOSH Pocket Guide and the North American Emergency Response Guidebook to help you figure out the hazards from this product.
 - a. Health hazards (How will it hurt your body?)
 - b. Safety hazards (Will it burn, blow up, or react?)
2. What protective gear (if any) do you think your team should wear to do your job?

Task 1

continued

- Review the following information.
- Complete a work plan for your team.

3. What symptoms should you watch for to tell you that you are being over-exposed to Strip-It?
4. What equipment do you need to confine the spill?
5. What should you do if the area you are working in suddenly becomes contaminated?
6. Who will be your team leader and communicate with the Incident Commander?

Task 1

continued

- Review the following information.
- Complete a work plan for your team.

Team 2: Decon Team

Your job is to set up the decon line, be ready for emergency decon for the Operations Level Spill Control Team, and to decontaminate Haz Mat Technicians or Specialists that enter the hot zone.

Work Plan:

1. How many stations will there be on your decon line and what happens at each station?
2. What equipment will you need to do your job?
3. What protective gear should your team wear?
4. What steps would you take to decontaminate someone who is having a medical emergency?

Task 2

- **Hands-On Practice**
- **Practice dress out and decon procedures.**
- **Each group will rotate through every station of this exercise.**

In this task you will get a chance to practice dress out and decon procedures. Your instructor will tell you which station to start at. Then follow the rotation schedule (see page 15). Each small group will rotate through all of the stations of this exercise. The stations are:

- 1) Dress out** — level B or C and proceed through the decon line.
- 2) Assist Dress out** — help the Dress out group to inspect their clothing and equipment, put it on, and tape up.
(Delete this station if less than 16 people in class.)
- 3) Decon** — decontaminate workers dressed in level B or C ppe

Each station is described in detail later on.

Task 2

continued

- **Practice dress out and decon procedures.**
- **Each group will rotate through every station of this exercise.**



Make sure to keep an eye out for your buddy(s) at all times. If you feel sick or too hot at any time during this exercise **STOP**. Tell one of your instructors, sit down in the shade, and drink something cool. If you have protective clothing on, take it off. Help your buddy to do these things if he/she feels sick at any point.

Select one person from your group to be the radio contact, if needed. This person will communicate with the other groups by two-way radio. For instance, the contact for the team that is dressing out should make sure that the decon team is ready for them before they come out to the decon line.

Task 2

continued

- Practice dress out and decon procedures.
- Each group will rotate through every station of this exercise.

Take your manual with you to each station so you can read the description of what you are supposed to do before you do it. Remember to follow the rotation schedule for your group.

Rotation (for a class of 16 or more):



Rotation for a smaller class (less than 16 people)

Note: If there are only enough people in class to form 2 groups, eliminate the “assist” station. The members of the dress-out group will assist each other.



Task 2

continued

- **Practice dress out and decon procedures.**
- **Each group will rotate through every station of this exercise.**

1) Dress-out Station

Identify your buddy. Look out for him/her at all times as you work through this station.

This station is designed to help you practice dressing out in levels B and C. You are dressing out in protective clothing so that the decon team can practice decon procedures. In an actual spill response, your job as an operations level responder should only require you to wear protective equipment when you work the decon line.

- Decide who will dress out in which level of protective gear. For this station you need:
 - 1 - 2 people in level B (SCBA, suit, gloves, boots)
 - 1 - 2 members in level C for wet decon (air purifying respirator, suit, gloves, boots)
 - 1 - 2 members in level C for dry decon (2 suits, air purifying respirator, gloves, boots)
- Inspect your equipment with the help of someone from the “Assist” group. Check:
 - your respirator
 - your suit(s)
 - your gloves
 - your boots

Task 2

continued

- **Practice dress out and decon procedures.**
- **Each group will rotate through every station of this exercise.**

1) Dress-out Station, continued

Get new equipment if you find any rips, tears, dirt, missing parts, or malfunctions.

Use the checklists on the pages following the station descriptions.

- c. Tape up the zipper of your suit, and the gaps between your gloves and suit and your boots and suit.
- d. The person(s) wearing level B should not go on air until your entire group is dressed, and the decon team is ready for you. Your radio contact person should let you know when the decon team is ready.

2) Decon Station – Wet Decon Only for this Practice

- a) This station is designed to help you practice different decontamination methods. You will not dress out for this station. Remember, during an actual spill response, the decon team must wear protective clothing to prevent exposure to chemicals.
- b) The first decon team will have to set up the decon line (with the help of your instructor). All other teams can modify the set up of the decon line as you wish. For wet decon, use soap and water for the washes and just water for the rinses.

Task 2

continued

- **Practice dress out and decon procedures.**
- **Each group will rotate through every station of this exercise.**

- Decide who will do what on the decon line. Make sure your equipment is working.
- Your radio contact should tell the Dress Out team when you are ready.
- Decon the workers dressed in Level B first. They have limited air supplies.

3) Assist Dress Out Station

Your job is to help the Dress Out group.

- Pair up with one member of the Dress out group.
- Help collect the right equipment and clothing.
- Help inspect the equipment using the checklists.
- Help your partner put on the suit. Tape up the zipper and the gaps between the gloves and suit and the boots and suit.
- Make sure your partner from the Dress Out team is feeling okay before leaving for the decon line.

Task 2

continued

Checklist

Level C

Level C Dress out

Before you put on Level C chemical protective clothing, choose a partner from the “Assist Dress Out” group. If there is no “Assist” group, pick a partner from your own team. You will put on a suit, gloves, boots, and an air purifying respirator. Use the checklist below to help you through the steps or to check your partner’s CPC.

- 1) Pick a suit (they come in different sizes), inner gloves, outer gloves, boots and a roll of duct tape.**

Checklist	Yes	No	Corrected
Inspect the suit.			
Seams intact?	---	---	---
Zipper intact?	---	---	---
Clean?	---	---	---
Put on suit.	---	---	---
Tape up zipper, putting tabs on the tape ends.	---	---	---
(If the suit is too big, make a belt out of tape around your waist.)			
Put on boots.	---	---	---
Tape top of boots to pant legs, putting tabs on tape.	---	---	---

Task 2

continued

Checklist

Level C

Level C Dress Out

2) **Pick a full-face air-purifying respirator. Choose the size that fit you best when you did the respirator activity.**

	Yes	No	Corrected
Check the respirator for dirt, tears.	---	---	---
Check inside for missing valves.	---	---	---
Put on respirator, under hood of suit, tighten straps.	---	---	---
Do negative-pressure (suck-in) fit check.	---	---	---
Do positive-pressure (blow out) fit check.	---	---	---
Tape hood around respirator, if needed.	---	---	---
Put on inner gloves.	---	---	---
Put on outer gloves (gloves inside sleeves) and tape. Put tabs on tape.	---	---	---

Task 2

continued

Checklist

Level B

Level B Dress Out

Pick a partner from the “Assist Dress Out” group. If there is no “Assist” group, pick a partner from your own team. You will put on a suit, gloves, boots, and an SCBA. Use the checklist below to help you inspect and dress out.

- 1) **Pick a suit (they come in different sizes), inner gloves, outer gloves, boots, and a roll of duct tape.**

Checklist	Yes	No	Corrected
Inspect the suit.			
Seams intact?	---	---	---
Zipper intact?	---	---	---
Clean?	---	---	---
Put on suit.	---	---	---
Tape up zipper, putting tabs on the tape ends. (If the suit is too big, make a belt out of tape around your waist.)	---	---	---
Put on boots.	---	---	---
Tape top of boots to pant legs, putting tabs on tape.	---	---	---

Task 2

continued

Checklist

Level B

Level B Dress Out

	Yes	No	Corrected
2) Pick and inspect an SCBA.			
Check harness for frayed parts, missing buckles.	---	---	---
Check tank pressure gauge. Does it have at least 1500 psi?	---	---	---
Open cylinder valve (on bottom of tank). Listen for low-pressure alarm, then open all the way.	---	---	---
Turn on mainline valve, making sure that the outlet that connects to the low-pressure hose is covered. Compare regulator pressure gauge to tank. pressure gauge (should be about the same reading +/- 100 psi).	---	---	---
Turn off the mainline valve.	---	---	---

Task 2

continued

Checklist

Level B

Level B Dress Out

	Yes	No	Corrected
3) Pick an SCBA mask			
Inspect the SCBA mask.	---	---	---
Put mask on chin-first. Tighten bottom straps first, then the rest.	---	---	---
Negative pressure fit check (cover hose and suck in).	---	---	---
Check exhalation valve (cover hose and blow out).	---	---	---
4) Put on SCBA tank, and harness.			
Put on and tighten harness/tank.	---	---	---
Connect the low-pressure hose to regulator at the same time as you turn on the mainline valve.	---	---	---
Check the bypass valve -- crack it open for a second. Close it again.	---	---	---

Task 2

continued

Checklist

Level B

Level B Dress Out

Close the mainline valve as you disconnect the low pressure hose from the regulator.

Yes No Corrected

--- — —

Go on air when your radio contact tells you that the Decon group is ready. Connect the low-pressure hose to the regulator as you turn on the mainline valve.

--- — —

Task 3

- **Do a debriefing by answering the questions below.**
- **Select a recorder and a reporter.**

All emergencies should end with a debriefing. OSHA's HAZWOPER standard calls it a "critique," but requires one after every chemical emergency. As a team, please answer the following questions. Pick one person to write down your answers and one to report back to the entire class.

1. What were some of the most important things that your team did to protect your health and safety during the hands-on practice?
2. If you had to do it again, what would you do differently?
3. Do you think you have enough training to respond to a real emergency at your workplace? If not, what extra training do you need?

Summary

Hands-On Practice

- ★ Everyone wants to rush in and take care of the spill as soon as it happens. But, the only way that you will stay safe is to size up the hazards first and help the Incident Commander develop a response plan for the specific situation.
- ★ Responding to an emergency takes a lot of coordination between the different members of the response team. Good communication helps to keep everyone working together and at the same rate.
- ★ Always work with a buddy during an emergency response. Never leave your buddy alone.
- ★ Always inspect or test your equipment before you use it. Your life depends on it.
- ➔ ★ The Decon team must be set up and ready to work before any spill control activities are performed. The decon team must have lots of practice and have quick access to decon equipment.
- ➔ ★ You need much more practice with the equipment you will use at your facility before you are ready to respond to a real spill.
- * Always debrief after an incident. Doing a critique of the emergency response is another chance to learn how to protect yourself better. Critiques are also required by OSHA.
- * Review your facility's Emergency Response Plan to make sure it reflects what you've learned in the critiques. Your employer is responsible for making sure your ER Plan is updated.