

Commercial Laundry Incident

Vance Bennett

This drill requires hazmat technicians to identify hazards present, evaluate meter readings and assess the chemical/physical properties of contaminants.

Cost of Drill: Depends on the availability of props

Time required: 60 minutes

Teaching Points

1. Identify meters that would be appropriate to use in this scenario.
2. Demonstrate the ability to properly use meters and interpret the meter readings.
3. State the limitations of meters used.
4. Demonstrate the ability to collect and interpret hazard and response information from sources such as printed reference material, technical resources, computer databases and monitoring equipment.
5. Given a simulated emergency response to a release of hazardous materials, demonstrate how to estimate the potential outcomes within the endangered area.
6. Identify the potential action response options (defensive, offensive and non-intervention) available.
7. Based on the toxic properties of the products involved, demonstrate the ability to select an appropriate level of personal protective equipment to use in this incident.

Note

1. There is no “school solution” and there are no right answers (but there may be a few wrong ones).
2. If you want more information, ask for it (you may not get it but you can still ask!).

Materials List

1. Applicable reference material (printed and/or digital)
2. HazSim Pro3®
3. Role players (laundry employees)

Setup Directions

Place an appropriate marking in the drill room showing the location of the floor drain. Have applicable product information available to provide to responders upon request.

Initiating the Drill

Give the drill participants the initial narrative (see below):

Initial Narrative

An employee of a uniform supply company called 911 to report a possible hazardous materials incident. They report that there is a mysterious odor in the building.

Drill Participant Actions

Select a drill participant to play the role of the first-in engine captain. Direct him/her to an appropriate location to meet with the role player(s) acting as representatives of the laundry. Direct the role player(s) to give the engine captain the following information: One of the employees poured 5 gallons of laundry destainer into the floor drain. A gas with a pungent odor immediately came out of the floor drain. They immediately evacuated the building. Employees are complaining of eye and nasal irritation. Several of the company employees are outside of the building waiting patiently for further instructions.

Drill Participant Actions

The first arriving drill participant(s) should interview the representatives of the laundry to obtain pertinent information about the incident. The company representative shall give the responders the following information (if asked!):

An SDS for the destainer.

A plumber treated a floor drain with a liquid drain cleaner shortly before the laundry employee poured the destainer into the floor drain.

Employees said the room smells like bleach.

The laundry supervisor doesn't have a copy of an SDS for the drain cleaner but may have some written information about the product.

Drill Inject

Tell the drill participants that the hazmat team has arrived. The mechanics of the interaction between the first responders and the hazmat team will be at the discretion of the drill facilitator. The drill facilitator shall also decide what apparatus to have on scene.

Drill Participant Actions

The drill participants shall decide whether to enter the drill room. They shall evaluate the reference material available (including the documentation provided by the laundry personnel). The drill participants should make the following decisions:

Enter the simulated laundry or take defensive actions?

What are the entry objectives?

What actions should the entry team should take after entering the space?

What gases are likely present?

What monitoring instruments should the entry team use?

What level of protection should the entry team wear?

Should the responders attempt to ventilate the laundry?

What methods of decontamination should be used?

Drill Facilitator Actions

Monitor the hazmat team's use of reference material. They should ask the laundry employees for the SDS for the destainer and any information they have about the drain cleaner. If the hazmat team asks for this information the drill facilitator shall give them an applicable SDS. They shall also give them the product information about the drain cleaner. If the hazmat team doesn't ask for this information then leave them to their own devices.

Drill Participant Actions

Write an appropriate site safety plan. Enter the laundry using appropriate chemical protective clothing and monitoring instruments.

Drill Inject

A drill facilitator shall tell the entry team that their 4-gas meter is detecting chlorine. Their chlorine dioxide colorimetric tube (if available) detects chlorine dioxide. The exact readings are at the discretion of the drill facilitator. (Note: the documentation for the incident this scenario is based on doesn't have information on the exact readings found.)

The entry team finds the highest levels of contaminants near the floor drain. The levels fall to near zero near the entrance to the room.

Drill Participant Actions

If the responders decide to attempt to ventilate the laundry they should decide who will do this. (Entry team? Second entry team? Non-hazmat trained responders?)

At the conclusion of the entry the hazmat team should select, set up and conduct appropriate decontamination.

Suggested Findings

What substance is most likely causing the odor? What are the hazards from this substance?

The SDS for the laundry destainer says to avoid ammonia and acids. The information sheet for the drain opener says it's made up of "powerful" sulfuric acid. The SDS for the laundry destainer lists "chlorine and chlorine dioxide" as products of decomposition. Most likely the two products combined and produced one or both gases. (They have a similar odor.) That would account for the pungent odor and the bleach-like odors reported. The sulfuric acid is a corrosive and damages body tissues on contact. The chlorine and chlorine dioxide are toxic gases.

The Hazmat Group Supervisor would like to use Level-B PPE for the initial entry. Is this a reasonable decision?

The applicable OSHA regulations permit this. (Some people would hesitate to allow this for an entry into an enclosed space.) The primary route of entry for chlorine and chlorine dioxide is inhalation. Level-B would provide adequate protection against this. It would also protect against the possibility of skin exposure from the small amount of acid and destainer present.

What monitoring equipment should the entry team use?

Responders should be able to monitor for chlorine with either a meter or colorimetric tubes. Chlorine dioxide would be a problem. Hazmat teams may not have a meter that has a chlorine dioxide sensor. Hazmat teams will have colorimetric tubes but not all the companies that make colorimetric tubes make a tube for chlorine dioxide.

Note: This scenario is based on two incidents. Both occurred in Southern California. One incident resulted from two substances (sulfuric acid and laundry destainer) being poured into the same floor drain. The second incident (as described in the HIRT report) had a more complicated cause for the release but the result is the same. The information for the first incident came from interviews with the fire department personnel who responded to the incident.