

Scenario 4A: Train Derailment

SITUATION:

Moments ago, a freight train derailed. Some cars are still in the adjacent county. The incident is located in an industrial area. Three tank cars are on their sides, one of which is leaking liquid into a water-filled drainage ditch on the south side of the tracks. The car is placarded with a DOT placard that reads: 1064 (see guide 117, DOT Emergency Response Guidebook 2012, included with this activity). The wind is steady from the northwest at 2 mph.

There is no visible fire. However, the fire department is on the scene. There are no known injuries. County law enforcement deputies and State police units are arriving on the scene. In addition, a large crowd of spectators has begun to gather. The media has picked up the story and is beginning to broadcast sketchy details.

The Emergency Management Center also contains a number of city offices and is normally not a 24-hour operation. This dual-use facility can be converted into a functioning EOC. Past exercises indicated that approximately 2 hours are needed to activate fully. Radio and telephone communications with other city departments are immediately available. Relations with the county EOC, which is a 24-hour, centralized dispatch operation, are excellent.

ASSUMED CONDITIONS:

[NOTE: This activity is designed without a specified size of impacted community.]

This activity assumes decision-making at an EOC or similar facility, in addition to those decisions made on the scene. The following events have been identified as critical to this scenario:

- Local interpretation of NWS forecast information
- Coordination with waste facility
- Evacuation decision-making
- Evacuation route monitoring
- Shelter availability
- Communication with the response resources
- Outside assistance decisions and request procedures

ID No	Guide No	Name of Material	ID No	Guide No	Name of Material
1035	115	Ethane	1050	125	Hydrogen chloride, anhydrous
1035	115	Ethane, compressed	1051	117	AC
1036	118	Ethylamine	1051	117	Hydrocyanic acid, aqueous solutions, with more than 20% Hydrogen cyanide
1037	115	Ethyl chloride	1051	117	Hydrogen cyanide, anhydrous, stabilized
1038	115	Ethylene, refrigerated liquid (cryogenic liquid)	1051	117	Hydrogen cyanide, stabilized
1039	115	Ethyl methyl ether	1052	125	Hydrogen fluoride, anhydrous
1039	115	Methyl ethyl ether	1053	117	Hydrogen sulfide
1040	119P	Ethylene oxide	1053	117	Hydrogen sulphide
1040	119P	Ethylene oxide with Nitrogen	1055	115	Isobutylene
1041	115	Carbon dioxide and Ethylene oxide mixture, with more than 9% but not more than 87% Ethylene oxide	1056	121	Krypton
1040	119P	Ethylene oxide with Nitrogen	1056	121	Krypton, compressed
1041	115	Carbon dioxide and Ethylene oxide mixture, with more than 9% but not more than 87% Ethylene oxide	1057	115	Lighter refills (cigarettes) (flammable gas)
0141	115	Carbon dioxide and Ethylene oxide mixtures, with more than 6% Ethylene oxide	1057	115	Lighters (cigarettes) (flammable gas)
0141	115	Ethylene oxide and Carbon dioxide mixture, with more than 9% but not more than 87% Ethylene oxide	1058	120	Liquefied gases, nonflammable, charged with Nitrogen, Carbon dioxide or Air
1041	115	Ethylene oxide and Carbon dioxide mixtures, with more than 6% Ethylene oxide	1060	116P	Methylacetylene and Propadiene mixture, stabilized
1043 1044	125 126	Fertilizer, ammoniating solution, with free Ammonia Fire extinguishers with compressed gas	1060	116P	Propadiene and Methylacetylene mixture, stabilized
1044	126	Fire extinguishers with liquefied gas	1061	118	Methylamine, anhydrous
1045	124	Fluorine	1062	123	Methyl bromide
1045	124	Fluorine, compressed	1063	115	Methyl chloride
1046	121	Helium	1063	115	Refrigerant gas R-40
1046	121	Helium, compressed	1064	117	Methyl mercaptan
1048	125	Hydrogen bromide, anhydrous	1065	121	Neon
1049	115	Hydrogen	1065	121	Neon, compressed
1049	115	Hydrogen, compressed	1066	121	Nitrogen

ERG2012**GUIDE 117****POTENTIAL HAZARDS****HEALTH**

- **TOXIC; extremely hazardous**
- May be fatal if inhaled or absorbed through skin
- Initial odor may be irritating or foul and may deaden your sense of smell
- Contact with gas or liquefied gas may cause burns, severe injury and/or frostbite
- Fire will produce irritating, corrosive and/or toxic gases
- Runoff from fire control may cause pollution

FIRE OR EXPLOSION

- These materials are extremely flammable
- May form explosive mixtures with air
- May be ignited by heat, sparks, or flames
- Vapors from liquefied gas are initially heavier than air and spread along ground
- Vapors may travel to source of ignition and flash back. Runoff may create fire or explosion hazard
- Cylinders exposed to fire may vent and release toxic and flammable gas through pressure relief devices
- Containers may explode when heated
- Ruptured cylinders may rocket

PUBLIC SAFETY

- **Call Emergency Response Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.**
- As an immediate precautionary measure, isolate spill or leak area for at least 100 meters (330 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind.
- Many gases are heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks).
- Keep out of low areas.
- Ventilate closed spaces before entering.

PROTECTIVE CLOTHING

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.
- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; is not effective in spill situations where direct contact with the substance is possible.

EVACUATION

Spill

- See the Table of Initial Isolation and Protective Action Distances.

Fire

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 1600 meters (1 mile) in all directions; also, consider initial evacuation for 1600 meters (1 mile) in all directions.

EMERGENCY RESPONSE

FIRE

- **DO NOT EXTINGUISH A LEAKING GAS FIRE UNLESS LEAK CAN BE STOPPED.**

Small Fires

- Dry chemical, CO₂, water spray, or regular foam

Large Fires

- Water spray, fog or regular foam
- Move containers from fire area if you can do it without risk
- Damaged containers should be handled only by specialists

Fire Involving Tanks

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Cool containers with flooding quantities of water until well after fire is out.
- Do not direct water at source of leak or safety devices; icing may occur.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.

SPILL OR LEAK

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- All equipment used when handling the product must be grounded.
- Fully encapsulating, vapor protective clothing should be worn for spills and leaks with no fire.
- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.
- Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material.
- Do not direct water at spill or source of leak.
- If possible, turn leaking containers so that gas escapes rather than liquid.

- Prevent entry into waterways, sewers, basements or confined areas.
- Isolate area until gas has dispersed.
- Consider igniting spill or leak to eliminate toxic gas concerns.

FIRST AID

- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- **Do not use the mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.**
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- In case of contact with liquefied gas, thaw frosted parts with lukewarm water.
- In case of burns, immediately cool affected skin for as long as possible with cold water. Do not remove clothing if adhering to skin.
- Keep victim warm and quiet.
- Keep victim under observation.
- Effects of contact or inhalation may be delayed.
- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.