Safety Train

For many years, Amoco Oil Company (now BP) has been training its employees and community emergency response agencies in the proper handling of tank cars during loading, unloading and in response to leaks and other emergencies. Until 1987, training was conducted mainly in a classroom environment using audiovisual presentations and static displays of valves and other tank car fittings. While this method of training was time tested and generally effective, it did not provide the realism and improved understanding possible with a "hands-on" approach.

Since safety and logistics concerns preclude using tank cars in product service for training purposes, it was decided to dedicate a tank car solely to training and to equip it in such a way as to be able to simulate any tank car in the BP fleet and most other tank cars in service today. The result is AMOX 911 – The Safety Train.

Built in 1972 as a two-compartment, 22,000 gallon, general service tank car, AMOX 911 was rebuilt to Amoco's specifications in 1987 and further modified in 1988 at a shop in Longview, Texas. The rebuilt car meets all FRA safety standards and all AAR interchange rules. It is a plate C car and can be moved in regular train service for use at any location served by rail.

In order to provide a wide variety of loading and unloading situations, as well as scenarios involving leaks and missing or defective parts, the Safety Train is equipped with various fittings, including:

- Two pressure car loading and unloading arrangements with different types of valves and gauging devices;
- Two non-pressure, general service manways with safety valves and vacuum relief valves;
- One acid loading and unloading arrangement with two different types of safety vent housings;
- One general service closed system top loading and unloading arrangement;
- One magnetic gauging device using a graduated non-metallic rod and one magnetic gauging device using a reel tape;
- Five different bottom outlet valves with two different heater pipe systems;
- One bottom washout arrangement typical of acid cars.

During training sessions, the compartment at the B-end of the car can be partially filled with water and pressured to 40 psig. Pressurized water allows realistic simulations of both liquid and vapor leaks. The compartment at the A-end of the car can be entered through the manway to view the arrangement of internal fittings and the operation of the bottom outlet valves. The bottom of this compartment may be filled with 18 inches of water so that bottom unloading can be observed. A grated walkway is provided above water level. Also on display in this compartment are more than 20 cutaway valves and fittings, the internal piping of a pressure car loading and unloading arrangement and photographs depicting incidents and problems involving tank cars and their fittings. The compartment can be heated or air-conditioned for student comfort.

Training sessions normally last three to four hours and are conducted by two company instructors, though the time frame and number of instructors can be modified to meet student needs. Each session can accommodate a maximum of 15 students per instructor. Training is tailored to the requirements of the sponsoring organization or facility. It can provide an overall view of tank car fittings or can concentrate on one type of fitting or situation. Repairs to fittings under both loaded and empty conditions can be demonstrated to and practiced by students.

Valves and other fittings on the top and bottom of the car can be made to leak, simulating missing, failed or defective parts, improper securement or overloading. One safety valve and one safety vent can be made to function to demonstrate the consequences of such an event. During leak scenarios, the students determine the simulated product from placards and available documentation, are encouraged to wear protective clothing and take such other safety measures appropriate to the product being simulated, then stop or minimize the leak or mitigate its effects using only that equipment normally available to them.

Student safety is a primary concern during training sessions. The car provides a realistic setting for training and is not arranged to accommodate the casual visitor. High steps, tight clearances, heavy fittings and slippery surfaces are present and water spray at 40 psig can cause eye injury. Students are asked to observe the following safety precautions:

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- Wear coveralls or full-length trousers or slacks and long sleeve or half arm length short-sleeve shirts. Shorts, dresses, sleeveless shirts and loose blouses are not allowed.
- Wear leather shoes covering the entire foot or industrial grade boots. High heels, open toe shoes, sandals, cloth shoes, moccasins, etc., are not allowed.
- Wear a protective helmet or bump cap, while inside or under the car.
- Wear safety glasses, goggles or a face shield if participating in or observing a leak simulation.
- Remove finger rings or war gloves. Remove bracelets and necklaces.

Safety Train carries a limited supply of safety helmets and safety glasses for the use of students who do not have access to such equipment. However, students are encouraged to provide their own protective equipment. Firefighters turn out equipment meets these needs.

The primary mission of Safety Train is to provide training for BP employees and for emergency response personnel who protect BP facilities. It can be made available to other organizations in the BP marketing area as time permits. Rough bookings are made nine to 12 months in advance and are finalized two to three months in advance.

A sponsoring organization is required to provide the following at its expense:

- A training site served by a straight, level railroad siding with at least 20 feet of clear space in all directions around the car and a vertical clear space of at least 25 feet;
- Access to clean water. If a fire main is to be used to fill the car, it should be flowed in advance to remove any debris or sediment;
- A means of disposing of the water in the car after the last training session, as the car must be emptied before being shipped to its next training location;
- Any specialized equipment, such as tools or special protective clothing, that the sponsor wishes to use during simulations.
- A nearby room that can be used as a classroom with a TV and VCR.

Training sessions may be photographed or videotaped and media coverage is encouraged. Note, however, that some facilities, such as most refineries, prohibit visitors from carrying photographic equipment without prior agreement. A sponsor is responsible for determining training site policy and assuring compliance with all applicable rules.

Attached is the latest schedule for Safety Train. This is provided for information only and does not imply an invitation to attend. Persons wishing to participate in or observe a training session must contact the sponsor directly.

For further information about Safety Train, please contact:

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Fact Sheet

ROVER
LPG Emergency Response Training Vehicle

Roll Over Vehicle for Emergency Response (ROVER) is a specifically designed and constructed unit built to allow emergency response personnel and LPG industry employees to get "up close and personal" with the type of equipment used for the highway transportation of liquefied petroleum gas (LPG).

This trailer was constructed to simulate an MC 3331 LPG trailer. It has all the valves, piping, and emergency fittings found on highway tankers. What makes this unit different is that it rolls over and opens up to allow program attendees to climb inside the trailer and see it in a way they have never seen one before.

The half-day training session is composed of a classroom portion during which attendees will participate in a discussion of hazardous material safety, cargo tank identification and construction, the specific properties of LPG and the correct procedures for dealing with an LPG emergency.

Attendees will then move outside to ROVER, where they Will participate in a walk-around inspection of the rolled over unit. All fittings and piping will be representative of both modern and older equipment. Participants will also be able to climb inside the unit through a specially constructed hatch to view cutaway valves and interior construction.

While the possibility of an LPG emergency remains remote, ROVER represents BP's continuing commitment to community, education and safety.

ROVER Fact Sheet

What: ROVER is a specially designed training unit that is built to simulate a compressed gas (LPG) highway transport trailer. The unit is constructed with rollover protection so that it can be repeatedly overturned without damage. The trailer also has a unique hatch arrangement so that attendees can enter into the unit to examine interior construction and piping.

Who: The ROVER program is designed to offer industry representatives and emergency responders alike an in-depth look at compressed gas properties, transportation and emergencies.

Where: The ROVER program is offered at various BP facilities and trade shows in the United States, Canada Mexico. The unit is fully roadworthy for highway transport to individual locations.

Program: The program consists of a classroom session of approximately 2.5 hours. During this time, attendees will discuss hazardous material transportation in general, the properties of compressed gases, the identification of various highway trailers, and the construction of the compressed gas transport, and the correct emergency response procedures to utilize when dealing with a highway emergency. Following the classroom session, attendees will be able to examine the ROVER unit in depth, both inside and out. BP experts will lead all discussions.

Sponsors: The program is sponsored by the Natural Gas Liquids department of BP.

ROVER Program Requirements

The ROVER program will require the sponsoring location to have a classroom facility large enough to handle the invited attendees. A TV and VCR will need to be provided. The classroom must be able to be darkened to accommodate the slide projector used during the session. The instructors will furnish the projector with the unit.

The program is designed to teach two classes per day during the time frame scheduled. These classes typically should be scheduled to start at 8 a.m. and 1 p.m. Accommodations can be made for large contingents of volunteer firemen by substituting an evening class for one of the day classes. The class size should be limited to 30 participants per session.

Due to the weight of the ROVER unit, a heavy-duty wrecker must be employed. The unit must be capable of handling at least 25,000 pounds. It must be a modern hydraulic boom unit with at least two stages of extension. Every effort must be made to assure that a "premium" wrecker operator be employed. Plans should be made to overturn the unit the day before class begins and upright it the evening following the last class. It is recommended that a towing company representative be invited to attend the classes. This generally fosters a trade of services and eliminates the charge for the wrecker.

The ROVER unit is generally self-contained. When choosing a place to lay the trailer down, consideration should be given to the fact that electricity is required to power lights inside the unit.

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