

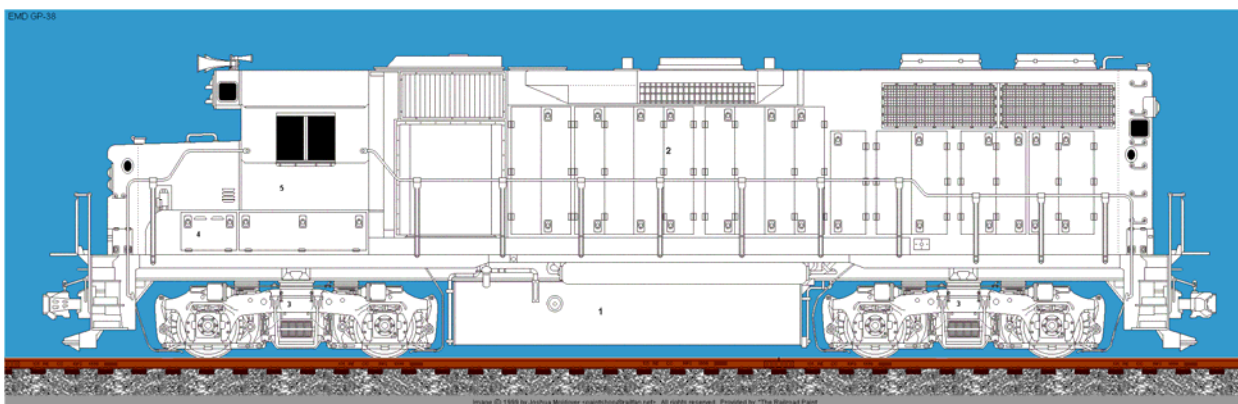
This guideline provides North Zone Agencies procedures for operating at a railroad-related emergency. The purpose of this guideline is to assist responding personnel in accomplishing the various tasks involved in extinguishing fires in railroad equipment. This guideline also identifies a number of safety procedures to be followed when operating in and around railroad equipment.

One of the major problems faced by firefighting personnel is the lack of familiarization with railroad equipment. For this reason, this operating guideline covers all railroad equipment that could be encountered by fire personnel.

LOCOMOTIVES:

The “Diesel-Electric Locomotive” is the power unit of choice for the railroad industry. The power is developed by the diesel engine, which drives a main traction generator or alternator. The output from this electric generator is then transmitted to the traction motors, which are mounted under the locomotive in massive frames called “Trucks”. The traction motors actually drive the locomotive.

Support systems installed on a locomotive include a battery system that provides power to start the diesel engine, an auxiliary generator or alternator that charges the battery and supplies low voltage current for control and lighting circuits, and an auxiliary alternator mounted integrally with the main traction generator or alternator that furnishes field current for the main alternator and power for the radiator cooling fan motors and for a blower motor, which cleans the inertial car body filters. A diesel-electric locomotive is capable of providing enough electricity to power up to 2500 residential homes. In the schematic below, the basic parts of a locomotive are shown.



1. Fuel tank with gauge
2. Location of main diesel engine and generator/alternator
3. Trucks (includes the traction motors, side frames, and axle sets)
4. Battery box
5. Cab

FIRE CONTROL PROCEDURES FOR DIESEL-ELECTRIC LOCOMOTIVES:

Fires in diesel-electric locomotives present several problems to suppression forces including:

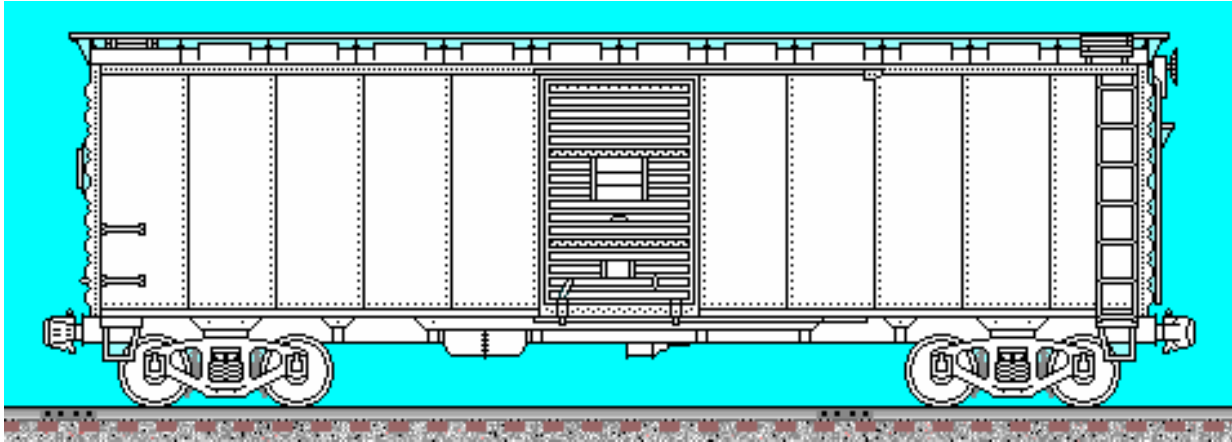
- The possibility of the fire being a Class C Fire.
- Two belly tanks of diesel fuel containing up to 2,000 gallons of diesel per tank.
- Difficult access to the fire.

Attack on a burning locomotive should include the following objectives:

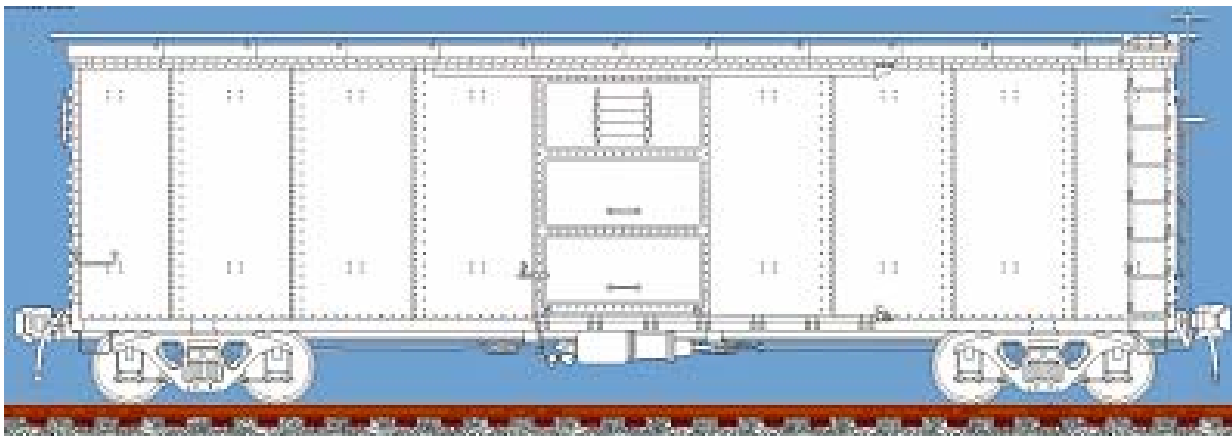
- An attempt should be made to activate the fuel "cut-off" buttons. In an emergency, pressing any one of three emergency fuel cut-off buttons can stop the fuel supply. Two buttons are located on the underframe near the fuel filler, one on either side of the locomotive, and a third is found on the engine control panel in the cab.
- To shut the electrical system down, close the main electrical breakers located in the cab. There is a large single throw knife switch located in the engine cab at the lower portion of the fuse panel. It connects the battery to the locomotives low voltage system. Once the locomotive has been de-energized, the fire can be extinguished using normal methods of extinguishment.
- A minimum of a 1 3/4" hose line shall be used. Line placement should be as follows:
 - The first stream is to be placed between the fire and persons who may be in danger from the fire.
 - When no life is endangered, the first stream is to be placed between the fire and the most severe exposure. In most cases, this will be the first car behind the locomotive.
 - Succeeding lines should cover other critical areas of the locomotive, which include the cab, belly fuel tanks, and the truck assemblies.

BOXCARS:

Boxcars are used throughout the North County to ship a variety of freight. Freight cars are owned by the railroad and can also be owned by private shippers. Boxcars can carry from 50 to 100 tons of freight with 70 tons being a typical average load. The basic boxcar is shown on the next page.



American Association of Railroads Standard 40' Boxcar



United States Railroad Administration 40' Boxcar

FIRE CONTROL PROCEDURES FOR ENCLOSED BOXCARS:

In an effort to minimize losses to freight and the boxcar, the “indirect attack” is the preferred method of extinguishment when the fire is in the interior space of the boxcar. The “indirect attack” has proven beneficial in all respects. It requires freight car doors to be kept closed and a small hole to be cut in the roof of the car directly above the fire for insertion of a fog nozzle to introduce water in fog form. Guidelines for extinguishing a boxcar fire are as follows:

- Prior to beginning fire suppression, the car’s contents shall be identified. Check with the Conductor of the train to assist in determining car contents. Chemtrec can also be contacted and the reporting marks and car number can be provided to assist in identifying the car’s contents. Once the cars contents has been identified and found not to be hazardous, an indirect attack can be made. The North County Transit District, operating as the San Diego Northern Railway, owns the line that runs through San Marcos.

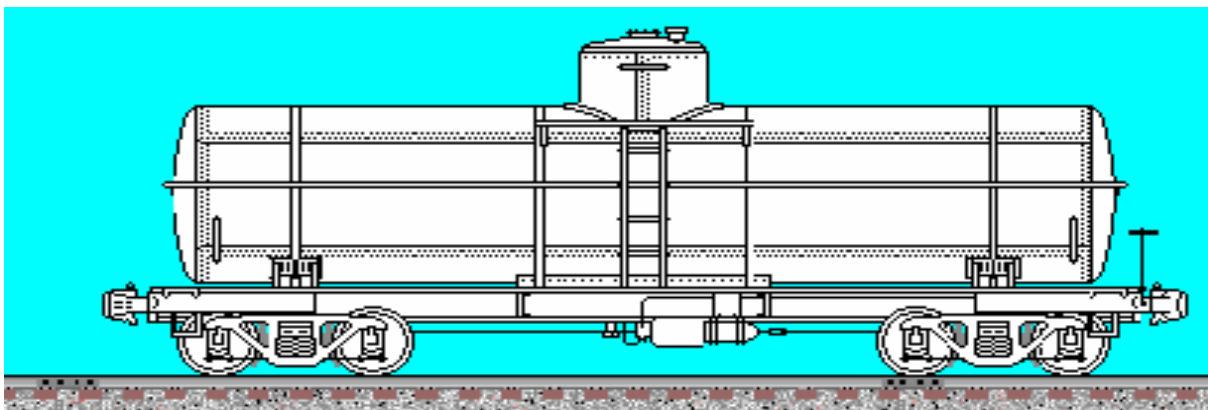
- Ladders should be placed at the corners of the cars. Ladders should not be placed in front of or in the sliding path of a door. Locate position of the fire within the car by observing the blistering of paint, hand exploration of car, or wetting down the car with water. The fire area will dry almost instantly, and paint will begin to blister.
- Once the product has been identified, cut a small hole in the car roof, directly above the fire. This opening should be just large enough to insert and move a fog nozzle in a circular motion. When it appears the fire has been extinguished and no smoke is visible from the hole in the roof, do not open car doors immediately. Fire personnel should wait and be certain the fire has been extinguished before exposing the contents of the car to fresh air.

TANK CARS:

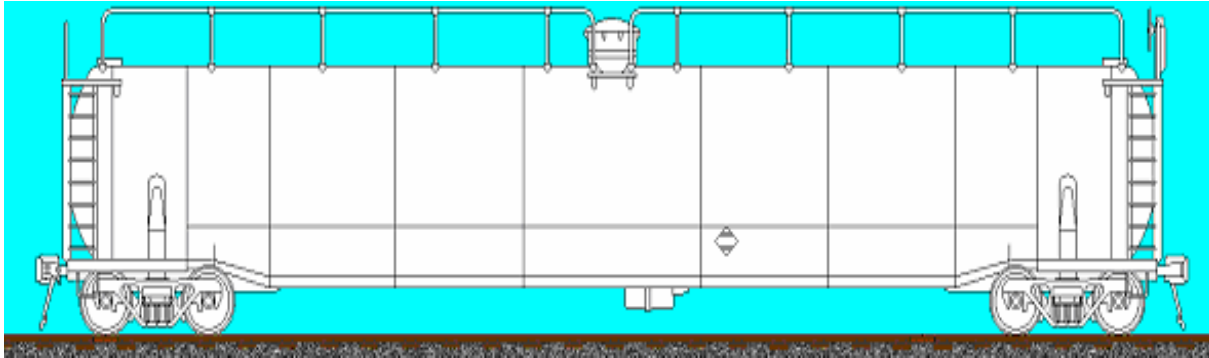
Fire personnel should be aware most tank car shipments contain hazardous materials and they should approach these incidents as if they were approaching a hazardous materials incident [**Refer to EOM 502**]. Personnel should maintain a mental safe approach.

Tank car capacities vary from a few hundred gallons to a maximum of 34,500 gallons. Tank cars are typically built with two features in common. They have a circular cross section and rounded ends called “heads”. Heads are rounded to more efficiently distribute the internal pressures. The tank car tank is made up of a shell closed at the ends by the heads. The shell is constructed of two to seven metal plates, which have been formed into rings and then welded together.

The most common type of tank car personnel will encounter in the Zone is the “Tank Type Covered Hopper”, although in some cases LPG cars do travel the rail line through the Zone to Escondido. A “Tank Covered Hopper” is considered a non-pressurized tank car and is unloaded pneumatically by the application of air pressure. Tank test pressures on this type of car range from 20-80 psi. Dry caustic soda is a common product shipped in this type of car. The main types of tank cars, pressurized and non-pressurized, are shown on the next page.

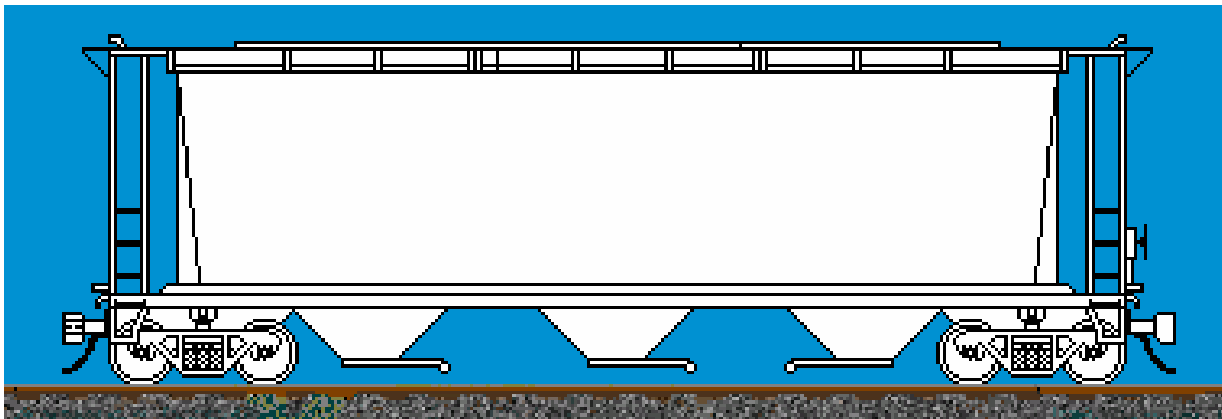


United States Railroad Administration 10,000 gallon tank car, single dome non-pressurized with safety vent.



Pressurized LPG Tank Car

The three bay cylindrical covered hopper is used to haul dry materials such as grains or plastic pellets. Covered hoppers are usually filled and off-loaded by using a vacuum system that blows the product into the car. Although it is rare, fires can occur in the various products that are shipped and stored. In order to fully extinguish a fire, the cars contents may have to be off loaded. In no circumstances should personnel enter into the hopper to attempt extinguishment.



3 Bay Cylindrical Covered Hopper

The Center Beam Flat Car is regularly seen in the Zone. This car is used to ship packaged and non-packaged lumber. Once a fire has begun in this type of car, personnel should be aware that the lumber load could shift. Special consideration should be given for the safety of personnel. A picture of a Center Beam Flat Car is shown on the next page.



Center Beam Flat Car

HANDLING TANK CAR INCIDENTS:

- Isolate the area and deny entry. Maintain a mental safe approach.
- Identify the product by use of placards, reporting marks, car numbers, and by contacting the railroad.
- Identify appropriate actions based on the product and surrounding area.

PASSENGER CARS:

- Train crew should be first point of contact for rescue crews.
- Identify availability of on-board emergency equipment, First Aid Kit, sledgehammer, axe, pry bar, etc.
- Determine passenger control: evacuation vs. shelter in place
- Establish passenger egress.
 - Doors are first choice; look for “quick release.”
 - Windows do not break easily (weight - 80#).
 - Look for “cut-outs” on car roof or sides.



Coaster **passenger trains** operate on a 42-mile route between the Oceanside Transit Center and the Santa Fe depot in downtown San Diego, serving 8 stations. Each car can carry up to 140 passengers.

Motive power for the trains is supplied by F40PH-2C's built by Morrison-Knudsen (equipped with a Cummins head-end power engine) and F59PH's from General Motors. Trains operate push-pull, with bilevel coaches from Bombardier.

The service is managed by the North County Transit District (NCTD), a commuter agency that provides public transportation in northern San Diego county. Amtrak supplies the crews and operates Coaster trains under contract.

SAFETY CONSIDERATIONS:

The following safety considerations should be followed when working around any railroad related equipment:

- Always assume that tracks are active. Expect a train from either direction. Different train companies, as well as private companies use the system day and night. If you are not positive that the track has been shut down, send personnel in both directions with emergency flares to alert possible on-coming trains.
- Always step over a rail and not on top of a rail. Be aware of environmental hazards (i.e. loose dirt, vegetation, ballast, snakes, poisonous plants, and insects).
- Keep feet, hands, and equipment away from moveable components.
- Do not block tracks or park on them. Make sure the railroad has been notified if you are working around rail lines and equipment. Also inform them of the type of incident (i.e. Pedestrian strike, Crossing collision, Derailment, Train to Train, or Fire HazMat).
- All personnel are to wear full protective equipment, including self-contained breathing apparatus.
- Personnel should not walk between cars or over the ends of coupled cars, if at all possible. If there is a need to walk around to the other side of a car, personnel should maintain a 10-foot safety travel path. Consider difficult access (i.e. bluffs, bridges, lagoons, hills, and ditches).
- Positive identification is to be made on the contents of cars before starting fire fighting actions.
- The Incident Commander should work with railroad personnel to assure that the car's brakes are set. If railroad personnel are not available, the car's truck assembly is to be chocked.

NOTIFICATIONS:

- In all incidents dealing with railroad equipment, the Incident Commander is to request a railroad representative to the scene.
- The On-Call Battalion Chief/Duty Chief is to be notified.
- In some cases, notification will have to be made to Public Works and law enforcement.

IDENTIFICATION:

First Responders should pay special attention to the cars reporting marks. As you look at the side of a car, the reporting marks will be located to the left end of the car. The first line will include the reporting marks and car number. This will usually be four letters followed by a set of numbers.

UTLX 1347890005

(Union Tank Car Company, the X designating a privately owned rail car)

Under the reporting marks, the cars weight limits will be found. This will include the load limit in pounds, empty weight and car capacity.

On the right end of the car, you will find specification markings such as the year built, length and width of the car. Tank cars use specification markings that detail the construction of the car such as pressurized or non-pressurized. First Responders should not attempt to handle a tank car emergency on their own. Rather, they should consult specialized resources for assistance in dealing with tank car emergencies.

SPRINTER/AMTRAK:

Currently, Sprinter is in the process of constructing a diesel light-rail line from Oceanside to Escondido.