



Safety Bulletin

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Responding to Emergencies along the Railroad

We all use established protocols to protect ourselves when dealing with emergencies on the highway, but many departments haven't taken the same precautions when it comes to the railroads that run through our jurisdictions. What plans have you made for protecting responders during an emergency on the tracks? Washington County, Maryland has 2- major Class 1 railroads that operate within our jurisdiction; CSX and Norfolk Southern. Both railroads are regulated by the Department of Transportation's Federal Railroad Administration (FRA).

Since 1998, the Federal Railroad Administration has required all railroads to establish liaisons with local emergency response agencies to provide them with information, familiarization training and annual drills. Why all the concern? Following are just some of the possible hazards:

- In Pennsylvania in 1972, firefighters had to stretch attack lines across a two-track branch line that carried freight and commuter traffic. The railroad had been contacted to shut down the line, but a failure in communications resulted in one train not being stopped. Four hoselines were cut and two firefighters were injured.
- Although runaways are rare events on a railroad, every so often a car (or cars) gets loose and rolls downgrade. Last year a runaway military supply train drifted downhill for several miles in upper New York before colliding with a track maintenance vehicle and derailling. One car, a propane tanker, caught fire, prompting the evacuation of a half-mile area and the closure of I-81. In 2001, an unmanned 47-car freight train rolled out-of-control across Ohio for more than 2 hours. It wasn't stopped until someone risked jumping aboard as it slowed on an uphill grade.
- At a 1996 Silver Spring, Md., train collision, a "bail-out" had to be ordered when another train was reported approaching the wreck. The railroad was attempting to move a freight train past the accident scene and there wasn't sufficient clearance for it to pass.

These examples make an important point: To protect themselves, emergency responders must employ advanced warning measures when working on railroads. Here are a few "railroad terminology" words that fire departments should familiarize them with...

- Federal Railroad Administration (FRA) - government agency under the Department of Transportation (DOT) that regulates railroads in the United States.
- Operations Control Center- the control center that assures the safe movement of trains through the mainline tracks. Control centers set train routes (remotely) from computer terminals. They also have and maintain radio contact with all trains and equipment operating on their property. Control Centers can be located several thousand miles away from a train's presence. (CSX= Jacksonville, Florida; NS= Roanoke/Atlanta)



Washington County Volunteer Fire & Rescue Association

Safety Bulletin

- Rail Yard- train depot where trains are made up (put together) for future product delivery. The Yard Master is in-charge of all train movements within a train yard. The Yard Master has radio contact with trains operating within the yard limits.
- Right-of-Way- property owned by the railroad company. This includes the tracks and all property outside the rails to the property line; usually a fence or sign.
- Railroad Track Area- this area includes at least 4- feet outside the ends of crossties.
- Switch Area- an arrangements of rails and components that switches a train's route of travel from one track to another. Switches may ne thrown remotely (from Operations Control Center, Yard Masters Office or by hand)
- Rails/ Railroad Track- the two steel rails that the trains' wheels ride on top of. These two steel rails will run parallel of each other. Never walk on top of or rest your foot on top of due to slipping hazard!!!
- Crossties- usually made of wood, crossties are used to fasten the rails down to proper track gauge.
- Ballast/Rock- stones that are dumped around the railroad track area to provide load support, drainage and tightness of the track.
- Engineer- the person that operates (drives) the train. Located in the train's cab.
- Conductor- the person that is in-charge of the train's safe movements and contents. This person may have, on their position, Bills of Lading, MSDS's, property contents and all train information.
- Signaled Territory or Train Signals- lighted signals mounted along a railroads property; pedestal, mast or ground mounted that provide lighted signals to trains. Like a traffic light along a street. Green= go or proceed; Lunar White= go or proceed; Yellow= slow speed; Red= STOP



Washington County Volunteer Fire & Rescue Association

Safety Bulletin

Railroad Terms & Hazards

To operate safely on and around railroads, you must be familiar with their components. The land under and immediately adjacent the rails are properly called the *right-of-way*. It's the private property of the railroad and is not intended for public access. It is a violation of federal law to trespass on FRA regulated properties, unless it is an emergency. But, contact to the railroads dispatch center needs to be made ASAP per federal law. Roads and highways are built across the right-of-way with the railroad's consent to permit public passage.

The right-of-way is constructed for trains and is not people-friendly. The foundation is *ballast*, crushed rock that is difficult to walk on and often unstable underfoot. The rails are frequently slippery. Step over rather than on them, as it's easy to slip and fall, cracking your skull on a rail. The crossties are poorly spaced for walking, often rotten and crumbling underfoot.

It's important to avoid *switch mechanisms* at all times as they can be moved without warning by a controller many miles away. Switches are thrown/ shifted to meet the requirements of train movements. Getting your foot trapped by a moving switch is a no-win situation—you probably won't be able to free yourself, and the engineer of the approaching train probably won't see you in time to stop.

Responders should be aware that on bridges or in tunnels and underpasses, there is almost never enough side clearance for a person to stand as a train passes (kill zone). For safety, when trains pass, personnel must stand at least 15 feet away from the rails and never enter a railroad tunnel or underpass without confirmation from the railroad that ALL TRAFFIC has been stopped.

The biggest danger in working on a railroad, however, comes from the trains themselves. Trains require great distances to stop, even in an emergency. High-speed passenger trains may need 1 mile to stop; 60-mph freights need 1 ½ miles to stop. Even local commuter trains reach speeds requiring long stopping distances. Terrain must also be considered. Downgrades will lengthen stopping distances and if a grade is especially steep, it may not be possible to stop a heavy train.

Complicating the matter: Today's high-speed trains are deathly quiet; you won't hear them until they are right on top of you. In 2001, three teens lost their lives to a 100-mph passenger train on Amtrak's Northeast Corridor. The train, its approach masked by an S-curve, shot out from an underpass barely a hundred yards from where the youngsters were walking on the tracks. Coming from behind them at nearly 150 feet-per-second, the train swept the teens from the rails, possibly before they even realized it was there. Such events underscore the primary rule of safety when on any railroad right-of-way: *Expect a train, on any track, in either direction, at any time!*

Remember: There is no such thing as a one-way or an unused track on any railroad.



Washington County Volunteer Fire & Rescue Association

Safety Bulletin

Develop a Preplan

To protect responders working on the tracks, the first line of defense is the railroad itself. Making use of its communications and signal system is the most effective way to halt train movements. Additionally, for safety, responders designated as flaggers should be stationed on the right-of-way in both directions (upstream and downstream) from an emergency scene to ensure that train traffic has stopped. If it hasn't, these flaggers may attempt to flag down a train, but their primary task is to warn rescuers at the scene of approaching rail traffic. For this reason, flaggers must be in direct radio contact with the incident commander, as only a few moments will be available to move personnel out of harm's way.

This level of coordination requires a preplan. When developing yours, consider likely locations for on-track emergencies and then determine appropriate flagging positions, in both directions, to protect responders at those sites. Flaggers should be positioned at a considerable distance from the emergency scene; at least 1 ½ miles in 80-mph territory and 2 ½ miles where trains are faster. Flagging positions should be easily accessible and in clear sight from a point at least a half-mile in front and, if possible, with the same clear distance behind. This gives approaching locomotive engineers ample time to see them and better judge how much distance they have to safely halt their trains.

Determine the owners and all users of the rail lines in your coverage area. The major rail carriers in this area are CSX and Norfolk Southern. Develop a complete list of phone numbers for the owners and operators, including the chief train dispatcher for each rail user. You should also include contact information for the railroad police, as they have jurisdiction over the entire right-of-way. Share this list with your communications center.

Finally, determine the exact name by which the railroad identifies your right-of-way. Map out all of the landmarks along the tracks and determine their railroad milepost designations. Note and cross-reference all mileposts for highway crossings, bridges, tunnels, industrial sidings, etc., with their local identifiers in your map books.



Washington County Volunteer Fire & Rescue Association

Safety Bulletin

Response Priorities

When an incident on the railroad occurs and you need to contact the railroad, provide very specific location information, such as mile markers, switch numbers, closet street name. The train dispatcher may be hundreds or thousands of miles away, even in another state. Identify the nature of the emergency and give your name, rank, department and a contact phone number. Generally, the person requesting the rail shutdown must also be the one who calls to cancel it. Record the names and titles of the people you speak to. You may want to think about the dispatching of extra companies upstream and downstream of the incident to protect your personnel. This is where your flaggers can be positioned.

It's also advisable to notify the railroad of emergency operations close to the right-of-way. Train dispatchers can then issue a "slow order" if necessary and/or warn train crews about apparatus located near the tracks.

When it becomes necessary to halt train movements, contact the railroad and get your flaggers out immediately. It takes time to shut down a railroad and it may already be too late to halt an approaching train. Until the railroad advises you traffic has been halted, make only minimal, life-saving manpower commitments to an on-track emergency.

Flaggers should be wearing, at a minimum, high-visibility vests so as to be seen and identified by approaching trainmen. At a half-mile distance, a human form is barely a speck, so anything available to enhance recognition should be utilized. The flagger should carry a red flag, preferably one 36 inches square, for daylight operations, and fusees for after dark. Slowly waving a red flag or a fusee horizontally across the track at chest height is the universal "stop" signal for all railroads. *Tip:* Always point the fusee down at arm's length to avoid burns.

When a train is still far in the distance, a flagger may signal while standing between the rails, the natural focal point for the engineer's vision. After a few moments, however, the flagger must move to the side of the track and continue signaling. As the train draws near, all personnel must move at least 15 feet from the rails. The train, although slowing, may not be able to stop until after passing the flagger's position.

In addition to staging flaggers, place a line of traffic cones outside the rails and/or position a vehicle with emergency lights adjacent to, but at least 15 feet from, the tracks. Additionally, day or night, you must place a lit fusee between the rails; this is the signal prescribed by the railroad rulebook that an engineer can't ignore. He is required to slow his train and prepare to stop. Once the train is stopped, the engineer will proceed with his consist at restricted speed (15 MPH) for 1-mile; looking out for dangers ahead that may be affecting the route of travel.



Washington County Volunteer Fire & Rescue Association

Safety Bulletin

Two dangerous measures you should never attempt: Don't barricade or block the tracks with vehicles, crossties, etc., and never attempt to interfere with the railroad's signal system. Doing so may force an engineer to make an emergency brake application. On a passenger train, this will cause serious injuries because the passengers will be thrown about by the sudden deceleration. A freight train may buckle and derail, sending cars cannoning off the tracks and endangering nearby homes and buildings. Operation of the signal system is the responsibility of the railroad. Leave it that way!

Area Railroad Emergency Contact Numbers

- **CXS:** 1-800-232-0144
- **NS:** 1-800-453-2350

Conclusion

A railroad right-of-way is a unique environment. Are your responders prepared for an incident on or near railroad tracks? Preplan now so Everyone Goes Home.

For additional information on railroad safety classes for your departments, contact CSX HazMat Manager Mike Austin at 410-368-4733 or email Mike at Mike.Austin@csx.com.

For additional information, training, or support; please contact your department Safety Committee representative or a County Incident Safety Officer. As always, Be Safe!!!

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