Report of the Week

Too Close to the Boil.
04/07/2011

Report Number: 11-0000085
Report Date: 02/14/2011 22:38

Synopsis
Boat rescue training has complications.

Demographics
Department type: Paid Municipal
Job or rank: Fire Fighter
Department shift: 10 hour days, 14 hour nights (2-2-4)
Age: 34 - 42
Years of fire service experience: 11 - 13
Region: Canada
Service Area: Urban

Event Information
Event type: Training activities: formal training classes, in-station drills, multi-company drills, etc.
Event date and time: 07/26/2010 00:00
Hours into the shift:
Event participation: Told of event, but neither involved nor witnessed event
Weather at time of event: Not reported
Do you think this will happen again?

What were the contributing factors?
- Decision Making
- Command
- Teamwork
- Human Error
- Training Issue

What do you believe is the loss potential?
- Life threatening injury
- Property damage
- Lost time injury
- Minor injury

Event Description
During scheduled training, we were executing a "Weir" evolution utilizing the two boat tether system. During the second evolution of the afternoon, the boat crossed the boil line and was swamped with water, but remained upright, submerging the motor and rendering it useless. Due to the excess amount of water in the boat, it was extremely difficult to extract. Extra staffing was called to assist, but the crew on the boat was able to effect the removal before being assisted.

Lessons Learned
Review of policies and procedures related to evolution and this training were suspended until full inquiry was made.

Report of the Week
Winter is finally giving way to spring. It is time to refresh on skills that are sometimes placed on the shelf due to inclement weather. Swift water rescue training is one of those skills that many departments renew when the weather breaks. This week's ROTW, 11-085, takes us to one of those training sessions for a reminder of what can happen when we let our guard down during training at a low head dam.

"During scheduled training, we were… utilizing the two boat tether system. During the second evolution of the afternoon, the boat crossed the boil line and was swamped with water, but remained upright, submerging the motor and rendering it useless. Due to the excess amount of water in the boat, it was extremely difficult to extract. Extra staffing was called to assist, but the crew on the boat was able to effect the removal before being assisted."

The power of a low head dam is evident from its nickname; "drowning machine." The U.S. Army Corps of Engineers lists 78,000 low head dams it is aware of. Other sources state that the number may be as high as 2.4 million (Pilgrim, 2008). When someone gets trapped in the dam's backwash, fire and emergency workers are called to assist. The danger of the dam lies in its construction. A lip is installed at the bottom of the dam. The lip creates a recirculating motion as the water falls over the dam, hits the lip and curls back on itself. This action creates a boil line as huge quantities of water reverse back toward the dam wall (known as "backwash") and other water continues downstream (known as "outwash"). The recirculating motion is continuous and powerful, trapping anything that enters the backwash. The power of the backwash has killed scores of people (including would be rescuers) through the years. Training at these "drowning machines" has also resulted in numerous mishaps as rescuers are dragged into the backwash. In general, swift water rescue training is one of the most dangerous types of training emergency responders can undertake. Once you have read the entire account of 11-085, and the related reports, consider the following:

1. Is there a potential for you to engage in swift water rescue through your agency?
2. What equipment is carried on your apparatus that could be employed for a swift water rescue?
3. If there is a "drowning machine" in your area, is it active and maintained by the U.S. Army Corps of Engineers, or dilapidated and virtually ignored?
4. How many drownings occurred in your jurisdiction last year?
5. Does your swift water training and operations comply with NFPA 1670, Standard on Operations and Training for Technical Search and Rescue Incidents?

Related Reports – Topical Relation: Swift Water Rescue Training

05-338 05-361 08-519 09-170 09-538 10-851

Submit your report to www.firefighternearmiss.com today so everyone goes home tomorrow.

Note: The questions posed by the reviewers are designed to generate discussion and thought in the name of promoting firefighter safety. They are not intended to pass judgment on the actions and performance of individuals in the reports.