

CLOSE CALL/HAZARD REPORT



Firefighter Struck by Fire Department Vehicle

10105 Jaydee Blvd, Fairfax Station

January 27, 2009



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Executive Summary:

On the morning of January 27, 2009, Engine and Medic 441 were dispatched to an ALS emergency at 10105 Jaydee Blvd in Fairfax County. That morning, Northern Virginia was experiencing a winter storm that had deposited over two inches of snow mixed with sleet and ice in the area.

As Engine 441 left the station and proceeded North on Ox Road, they found the roadway mostly clear, with only a light coating of slush. As they turned off of Ox Road onto Jaydee Blvd, the road conditions changed. The back roads had accumulations of approximately two inches of a wintry mix. The driver checked the brakes by applying them intermittently and found no adverse slipping or loss of traction. As the engine approached the scene, the decision was made to park prior to and up hill from the incident to protect the incident scene with the engine.

After arriving on the scene, the driver placed the transmission in neutral, applied the parking brake, exited the vehicle, and proceeded to place a wheel chock in front of the left rear tire. The wheel chock was the standard urethane wheel chock carried by most Fairfax County Fire and Rescue Department units.

The officer on Engine 441 assessed the scene and made the decision for the crew to walk down the hill to assist the patient who had fallen in the snow. During the initial assessment, it was determined that the patient had significant injuries and would require packaging on a backboard prior to being transported to the hospital.

As Medic 441 arrived on the scene, Engine 441's officer directed them to park in a driveway behind the Engine so they could easily leave the scene once the patient had been loaded. The engine officer left the firefighter medic and other members of the crew with the patient to complete their packaging and care. Moments after the officer walked past the engine, it broke traction and began sliding down the hill. One of the firefighters working on the patient noticed that the engine was traveling down the hill, but thought someone was inside moving it closer to the scene. The driver looked up and realized that there was no one driving the unit, and immediately called out for the other members treating the patient to move away from the area. The engine officer turned around and saw that the engine was sliding down the hill and also called out a warning to the crew treating the patient. Seeing that they were in the path of the sliding engine, the driver was able to safely pull the patient out of the way.



Executive Summary (continued):

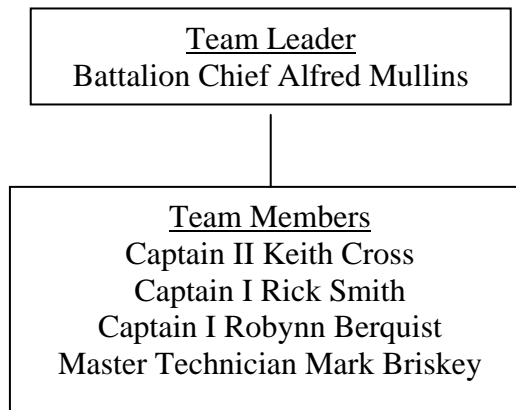
As the engine rolled past the crew, it struck the postal delivery truck that was near the crew's initial location. The impact caused the delivery truck to careen to the left onto the road shoulder, and the engine to the right, striking a firefighter with its bumper. After being knocked to the ground, the firefighter was struck a second time by another part of the sliding vehicle. The firefighter was then able to roll free of the vehicle's path and into a ditch on the right side of the road.

Once the vehicle came to rest off the road, Engine 441's officer initiated an emergency traffic radio call to DPSC advising them of the situation. The officer asked for two additional Medic units due to the potential for injuries from the accident. A few moments later, the officer provided additional information to DPSC giving them an incident update and asked for additional resources to assist with the incident.



Investigation Team:

The Firefighter Injury Investigation Team was activated on February 3, 2009, to investigate the circumstances surrounding the incident. The team was assembled under the direction of Deputy Chief John Diamantes who appointed Battalion Chief Alfred Mullins as the Team Leader.



Investigative Tasks

- Review all written statements.
- Conduct follow-up interviews as needed.
- Review pictures.
- Review information regarding similar incidents within the fire service.
- Review all relevant departmental Standard Operating Procedures, operating manuals, and other related documents.



Incident Information

Date: January 27, 2009

Dispatch Time: 1134 hours

Incident number: 20090271465

Incident Address: 10105 Jaydee Blvd.

Fire Box number: 4101

Weather¹:

Temperature:	29 F (daily average)
Precipitation:	1.9" of snowfall (Reagan National Airport)
Wind:	5.3 MPH SE gusting to 12 MPH
Sky:	Overcast/Snowing
Humidity:	85%

Dispatch Information:

ALS Emergency
10105 Jaydee Blvd, Fairfax Station.
Patient fell in the roadway. Patient having pain in hip and trouble breathing.

First Alarm Units:

Engine441 and Medic 441

Additional units added on to call:
UT441, T441, M435, M432, BC407, EMS407, SAF401,
R414, DFCO, AFCO, BC SAF, EMS404, PIO402

Investigations:

Fairfax County Police Department



Findings, Contributing Factors, and Recommendations:

1. Equipment – Wheel Chocks

Findings:

A wheel chock was properly placed in front of the left rear tire, but did not prevent the vehicle from sliding during the event. When the vehicle came to rest off the roadway, the chock was found underneath the front of the left rear tire in the same position as placed.

Contributing Factors:

1. The combination of ice and snow accompanied by temperatures hovering just below freezing created a very slippery road surface. Several of the individuals on the scene complained that they had difficulty walking up and down the hill and some of them even fell while on the scene. Medic 441 pulled into a driveway and became stuck; they could not gain traction to back out of the driveway.
2. E441's wheel chock was made of plastic/urethane mix. The smooth bottom surface offered very little resistance when the tire rolled against it.



Recommendations:

The department should amend vehicle specifications to include the NFPA compliant "cleated" wheel chocks. The cleats would allow the wheel chock to dig into the ice or snow when compressed, thus preventing the vehicle from sliding. The cleated chock has been approved for use in all weather conditions and on all road surfaces prevalent in Fairfax County. Retrofitting can be accomplished through conducting a cost benefit analysis to determine a best means for replacement.





Findings, Contributing Factors, and Recommendations (continued):

2. Equipment – Tire Chains

Findings:

Automatic tire chains were available, but not utilized on E441. Cable chains had not been placed on the vehicle.

Contributing Factors:

Standard Operating Procedure 03.06.06, *Cable and Snow Chains*, is unclear with its delineation on the use of cable chains, regular tire chains, or automatic tire chains during inclement weather. The current S.O.P. states that “regular” tire chains will be applied to apparatus when the snow fall is in excess of six inches. The S.O.P. states that automatic tire chains are good for use on ice and packed snow up to 6” deep.² It leaves the use of cable chains up to the unit OIC.

The department, by its location in the mid Atlantic area, experiences a low frequency of winter precipitation. The Department has not conducted training to address winter weather driving techniques and the use of tire/cable chains.

Recommendations:

1. Department policies should be adjusted to promote the use of cable chains and limit the reliance on automatic tire chains.
2. Training should be provided to department personnel on the use, limitations, and various types of chains that are currently being utilized. Information on automatic tire chains can be found at www.onspot.com.
3. Training should be provided to department personnel on driving in adverse weather conditions. This training should be included in the training Matrix and OARS Training.
4. The determination to use snow chains should be made at the Battalion Chief level. To aid in decision-making, the Battalion Chief should contact their station officers for an assessment of the conditions in their area.



Findings, Contributing Factors, and Recommendations (continued):

3. Situational Awareness

Findings:

Engine 441 was positioned at the incident scene on the uphill side of an incline from the site of the injured person. The engine was parked parallel in the roadway within 50 feet of the postal vehicle near the injured person's location. The vehicle's wheels were left in a straight position and not turned towards the right side of the road.

Contributing Factors:

The snow and ice covered road conditions were not taken into consideration when positioning the vehicle at the incident scene. The vehicle was parked in-line with the roadway and not turned to block traffic within the safety zone.

Recommendations:

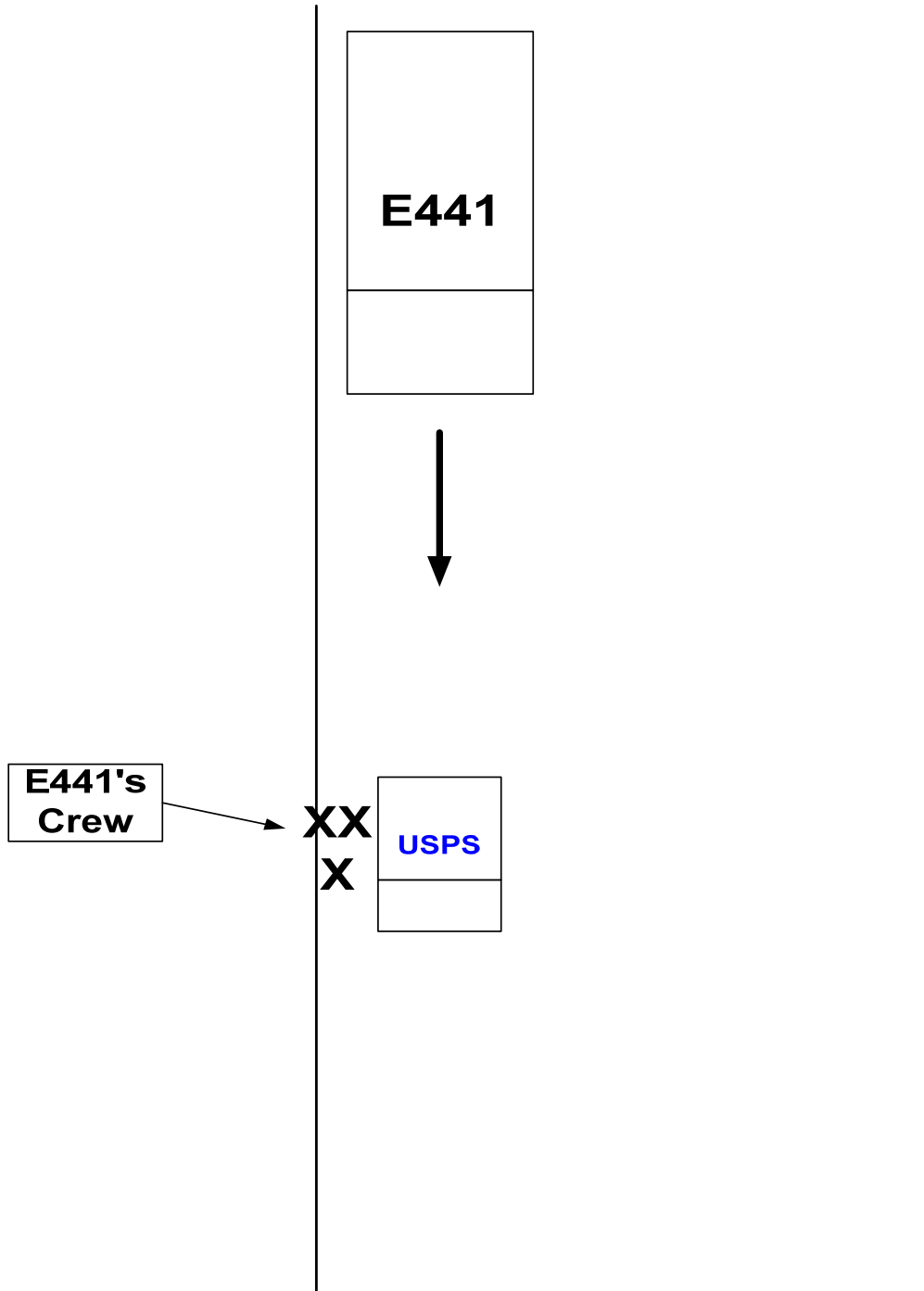
Through district familiarization and observation, personnel should identify areas which may pose particular problems during winter weather. When responding to these areas, personnel should make adjustments to their normal positioning based on the situation.

1. Units may need to be parked further away, possibly on a flatter section of the road.
2. Units should be positioned so that they are not in-line with the incident so that if they do move or slide, they will not impact the incident scene. The vehicle's wheels should be turned in a direction that would not carry it directly into the incident if the vehicle should begin to move on its own.
3. Ice Melt, sand, or absorbent can be used under the wheels and around the incident scene to enhance vehicle traction.
4. Cable chains or automatic tire chains should be used on all snow/ice covered roads. The cable chains can further create enough friction to prevent the vehicle from sliding after being parked.
5. If traffic can safely be controlled at the top of the incident location, units may elect to park downhill from the incident. All other measures must be taken to establish a safety zone per policy to include posting a look-out with flares at the uphill location.
6. The engine driver or other designated person may be required to stay with the vehicle to monitor the incident scene and alert others of any dangers at the scene by utilizing the vehicles air horns.



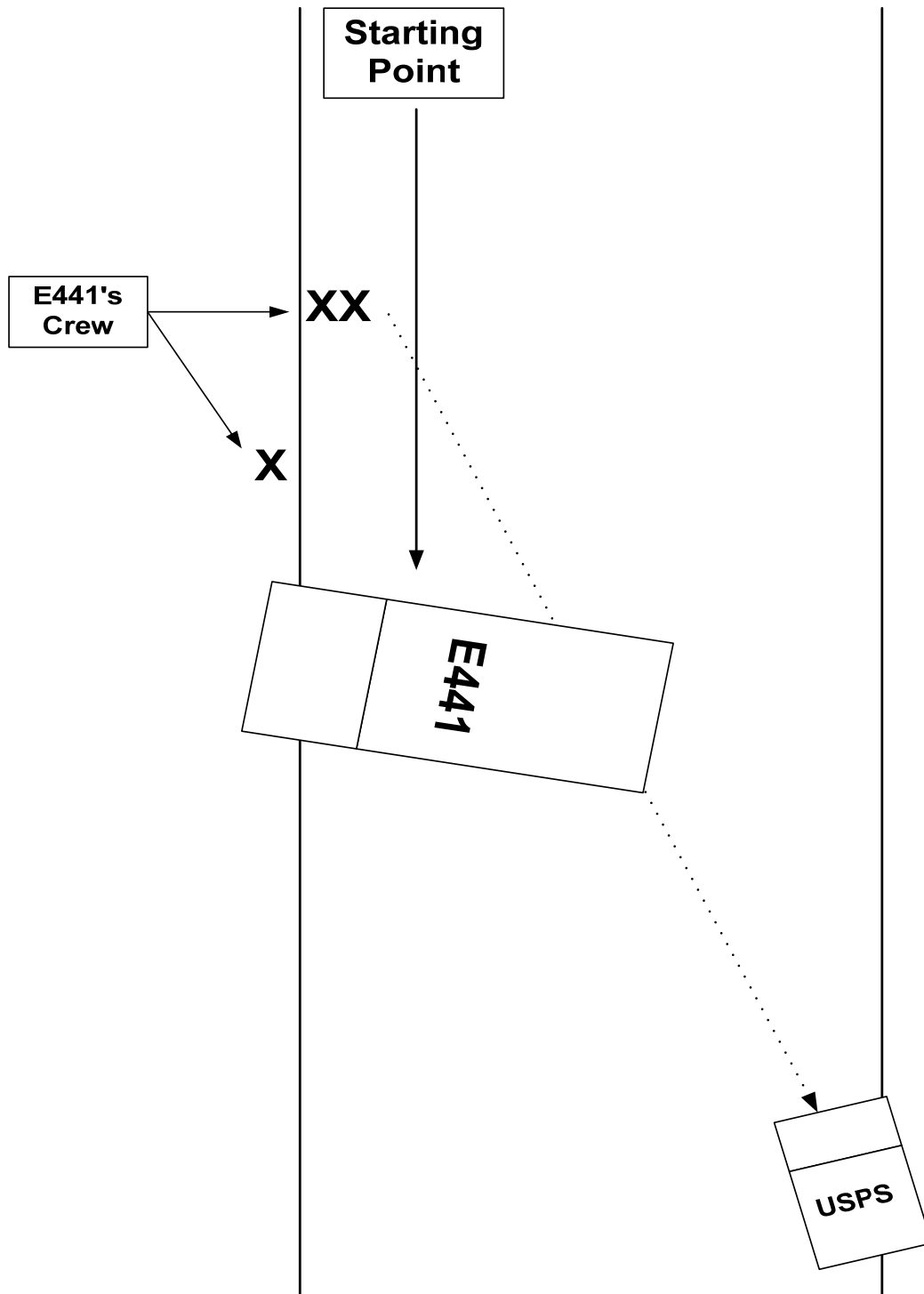
Drawing and Photographs:

E441 Arrival on Scene





E441 After the Incident





The rear of Engine 441 was just past the driveway where Medic 441 is located before it started sliding.



The scene after the road was plowed.



Engine 441's final location.



Safety Statement

1. Engine 441's officer and crew were able to warn other members at the scene of the sliding engine by remaining aware of their surroundings through "scene situational awareness." Although one member was struck by the vehicle, the quick hazard identification and actions taken to warn others at the scene were instrumental in preventing further injuries or deaths.
2. Extra safety measures must be practiced when parking units on slopes and inclines during inclement weather. The potential for the vehicle to break traction and slide needs to be reduced through situational awareness, hazard recognition, and safe practices.
3. Consideration should be given to having a crew member (driver) stay with the response vehicle in inclement weather to monitor the safety zone and note changes in weather conditions. Warning devices should be used to alert crew members at the scene of any unsuspected dangers.
4. In February 2008, a Central Pennsylvania, Engine Company slid down a hill while pumping at a fire. It came to rest very near the well involved structure. (Photo below)





Work Cited

1. www.wunderground.com
2. Fairfax County Fire and Rescue Department
Standard Operating Procedure 03.06.06 – Cable and Snow Chains
3. NFPA 1901-1904
4. Northern Virginia Highway Operations Manual.
5. www.onspot.com
6. www.firefighterclosecalls.com