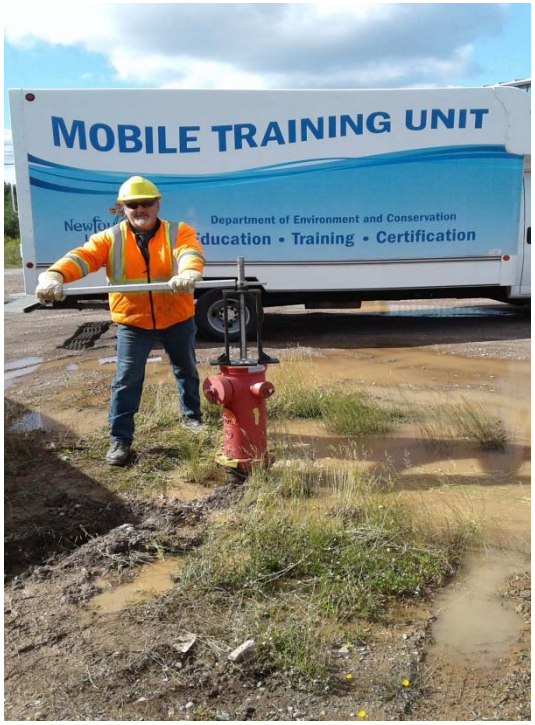
Newfoundland Labrador

Water Resources Management Division

Department of Municipal Affairs & Environment

Operator Education, Training and Certification Program



Hydrant Seat Removal Tool

Presenter Jim Pollett

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Overview

- The OETC program provides on-site training to municipal operators, and as trainers, we also encounter unique situations which may require some improvisation.
- The Hydrant Maintenance training session is one of the most requested sessions we offer.
- One component of the training is troubleshooting, which led to the development of the tools featured in this presentation.

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Overview (continued)

- In the 2017 season I had received inquiries from four different communities who were experiencing difficulty in extracting the hydrant seat and stem assemblies, after dismantling the hydrants.
- Curious as to the cause and fix for this problem I enlisted the help of Gilbert Burton, the operator in Lushes Bight-Beaumont-Beaumont North, to investigate further. His was one of the hydrants in question.

Symptoms and Diagnosis

- The symptoms we encountered were at the point of extraction of the hydrant seat assembly. This was after supposedly unscrewing the assembly from the threaded section of the hydrant body. When we tried to extract the assembly we could move it up and down similar to the feeling of manually opening and closing of the valve, but it would not come out.

- The diagnosis was there was a problem in the lower section of the hydrant preventing the seat from being unscrewed or that it was disengaged and would not come out.

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Seat Removal Wrench

- To investigate the problem we designed a new wrench which would enable us to connect directly with the seat and ensure it was unscrewed. We did not want to put excessive pressure on the assembly if we weren't sure.
- There were secondary benefits to this wrench for future hydrant disassembly:
  - Advantages
    - it is a cheap alternative to the existing tool assembly
    - it provides a means to unscrew the seat if the stem is broken
    - if the seat requires extra force to unscrew it, this tool could prevent twisting the stem shaft
    - it does not require the valve to be closed
  - Disadvantages
    - it requires the top section of the barrel to be removed
    - it requires the safety coupling to be removed

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The Procedure

- We dismantled the hydrant as per normal and could not extract the hydrant valve assembly by normal means.
- We now knew that the seat assembly was unscrewed.
- At this point the hydrant had to be excavated and removed so Gilbert decided to apply aggressive force in hopes of avoiding the excavation.
- The assembly was removed. The source of the problem was a severely deteriorated and deformed main valve disc.
- The idea for a tool to perform this task was the result.

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Hydrant Seat Extraction Tool

- The tool was designed to create a quick easy safe way to extract troublesome inner hydrant assemblies:
  - it is cheap to make
  - it sets up in minutes
  - it eliminates the use of potentially damaging external forces
  - it uses the hydrant barrel to bear the load
  - it can be adapted to all hydrant brands

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