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# Tanker Off-Load Tests

Evaluating a Jet-Dump  
Colton, New York  
August 24, 2008



# Overview



- On August 23<sup>rd</sup> and 24<sup>th</sup>, 2008, the Colton (NY) Fire District hosted a Rural Water Supply Operations Seminar and Drill presented by GBW Associates, LLC.
- During the tanker shuttle drill on the 24<sup>th</sup>, the crew of an engine tanker (that was outfitted with an internal jet dump) asked about the rate at which they could dump their water.
- They wanted to know the impact that engaging the jet dump had on their off-loading ability.
- After the drill, a couple of off-load tests were done to answer the inquiry.
- The results of those tests are documented in this presentation.





- Hopkinton Engine Tanker 44
  - 1981 E-One
  - 2,200 gallon tank
  - Hale 1,500 gpm pump
  - 5-inch round dump equipped with a Jet Dump
  - No direct fill – must be filled back through the dump or through the pump.







# The Problem

- How much faster can Engine Tanker 44 off-load its tank water when the jet dump feature is used?





- A jet dump normally improves the off-load ability of a tanker by quite a bit.
- However, that improvement depends on a number of items including:
  - The size of the dump opening, and
  - The operating pressure needed at the discharge of the jet pump.





- The test set-up was simple:
  - Engine Tanker 44 was filled until it overflowed and then dumped completely.
  - This was done twice –
    - Once without using the jet dump, and
    - Once using the jet dump





# Establishing Constants

- In order to collect comparable data, a few constants had to be established.
  - When dumping, the tanker was parked at the same spot on a boat ramp so that the appropriate incline was replicated each time. (The boat ramp was simply used to control water run-off back into the river.)
  - When dumping, a physical point on the actual dump outlet was marked and the water was allowed to dump until the water line reached that pre-determined point.
  - When operating the jet dump, a discharge pressure of 125 psi was used.





# Test Results: Engine Tanker 44

- Gravity dump only.
  - 7 minutes, 30 seconds
  - 300 gpm
- Jet Dump engaged
  - 4 minutes, 16 seconds
  - 528 gpm
  - **A 76% improvement over gravity dumping.**



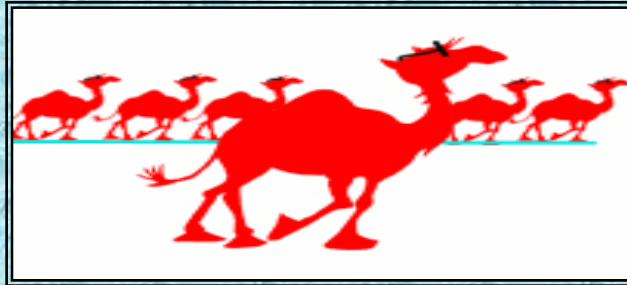


# Summary



- It was clear that using the jet dump really made an improvement in the off-loading rate.
- Most likely, an increase in discharge pressure would make some improvement in off-loading – but the exact pressure was not determined during this test.
- The testing process would have been more accurate had it been conducted using scales and calculating the actual amount of water offloaded each time instead of “eye-balling” it.
- However, the tests were a good “field” demonstration.





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