



6th Annual Aboveground Storage Tank Conference & Trade Show
September 19, 2013 – Houston, TX

10:30 am

INSTALLATION OF NON-STANDARD DEVICES INTO
API-650 APPENDIX “J” TANKS.


Let's start the conversation.

CANADA, just North of Montana

Scope: Promoting the use of 24" x 36" clean-out doors.

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21) By just looking at this photo, a 12 R1 inspector can tell that it is not a tank covered by API 12 R1. Why / How?



Make (1) One selection

- Make (1) One selection
- Because it is not painted white.
- Because it is inside of a secondary containment.
- Because the tank is steel and it has a round manway.
- Because of all of the above.

Make (1) One selection

The focus of our presentation is to show that tanks built to the API Tank Standard 650, Appendix "J" should have an option for a cleanout assembly, just like other similar sized tanks.

Scope: Promoting the use of 24" x 36" clean-out doors.

API 650 - APPENDIX J - SHOP-ASSEMBLED STORAGE TANKS

TANK CONNECTIONS AND APPURTENANCES

Section 3).. Manholes, nozzles, and other connections in the shell shall be constructed and attached as specified in section #5, *but it is unlikely that reinforcing plates will be required for manholes and nozzles in the tank shell.*

“This statement is correct and the use of a clean-out door works just fine.”

Scope: Promoting the use of 24" x 36" clean-out doors.

We would like to have this statement added:

“If so requested by the purchaser, the tank may be equipped with a clean-out / manhole assembly as detailed in the most current edition of API 12F.”




Scope: Promoting the use of 24" x 36" clean-out doors

Goal. Allowing for the use of cleanout doors on all tanks.



Large Riveted Tanks
Required

20" Shell Manhole... 24" Shell Manhole..



Have been equipped with
clean-out doors.

24" x 36" clean-out doors are very popular.

Clean-out doors: Background *cleaning.*

(1) easier



Four tanks with different design specifications, all having rectangular clean out doors.

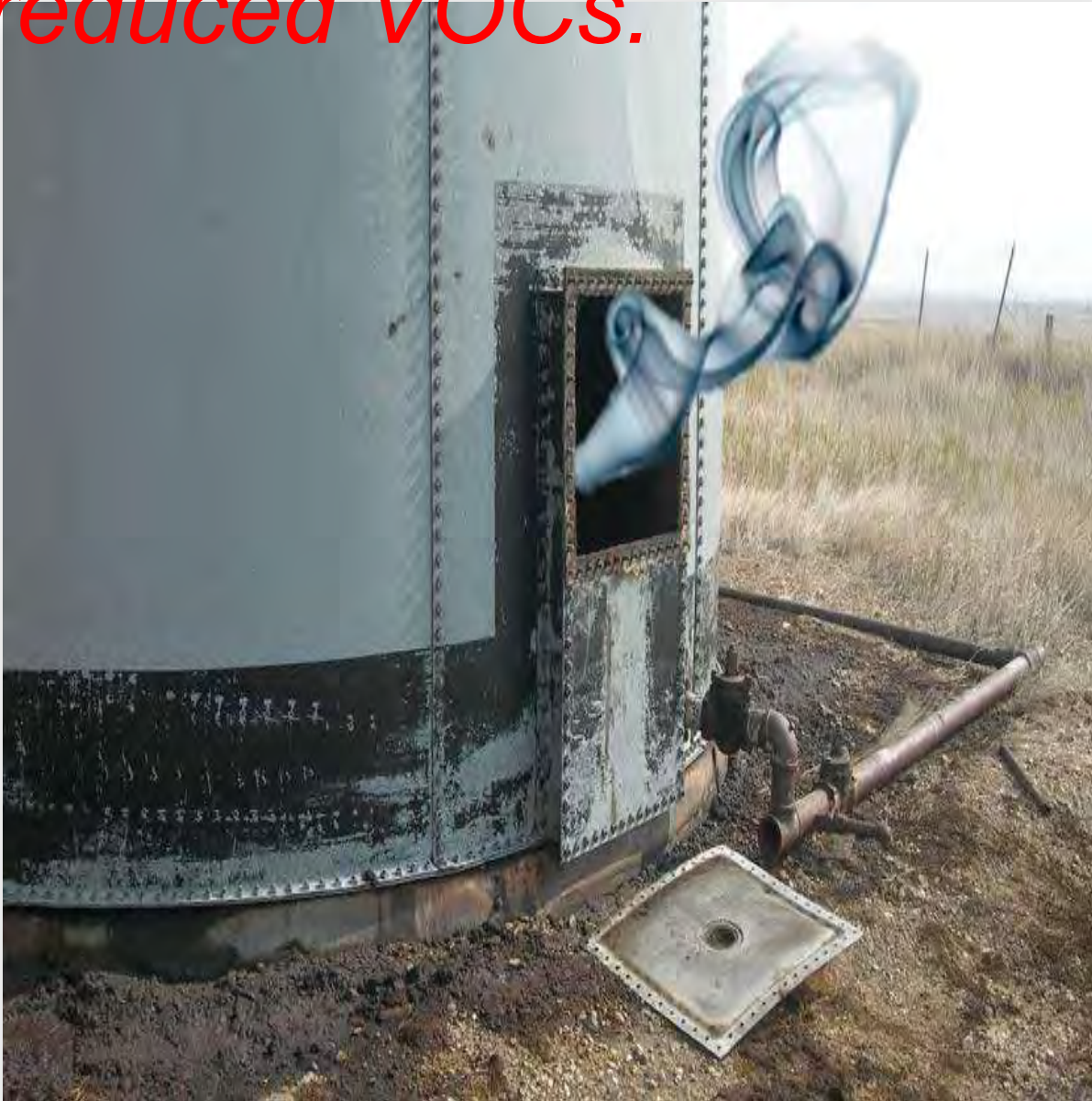
Q1) Why do we install clean-out doors on production tanks?

A1) The installation or use of said clean out doors enable the tanks to be washed out regularly in a relatively short time.

Clean-out doors: Background

(2)

reduced VOCs.



The longer it takes to get a tank clean, the longer VOCs are spewing out into the atmosphere.

Clean-out doors: Background

(3)

safety. (1 of 4)

Hazards reduction may be result by any number of reasons:

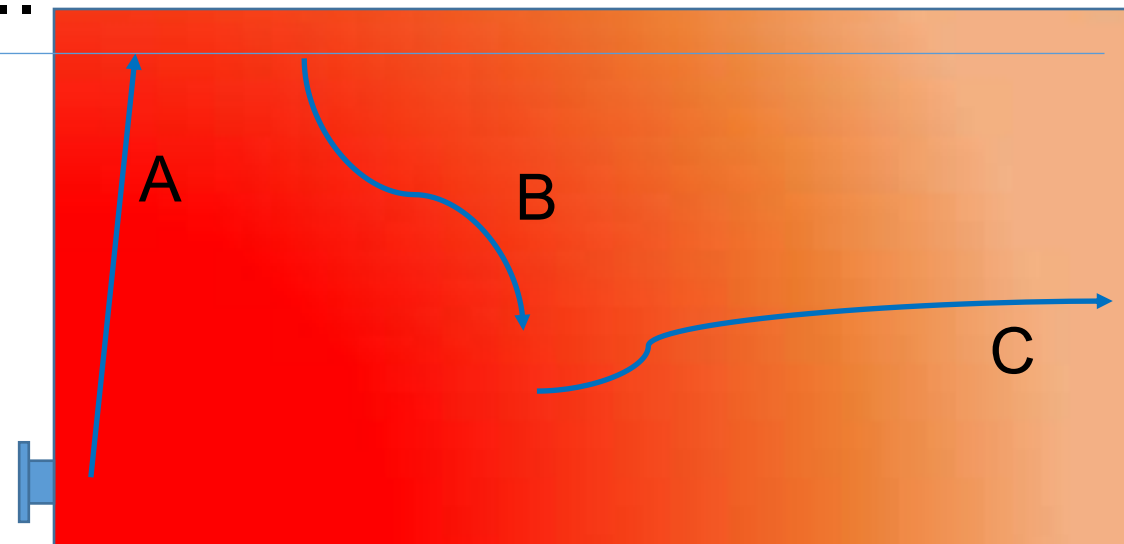
1) Shorter terms of exposure to hazards

a) Fire & Explosion..

b) Asphyxiation..

c) Overexposure to toxic substances..

HIGH



Risk drops, then increases slowly.

Clean-out doors: Background

(3)

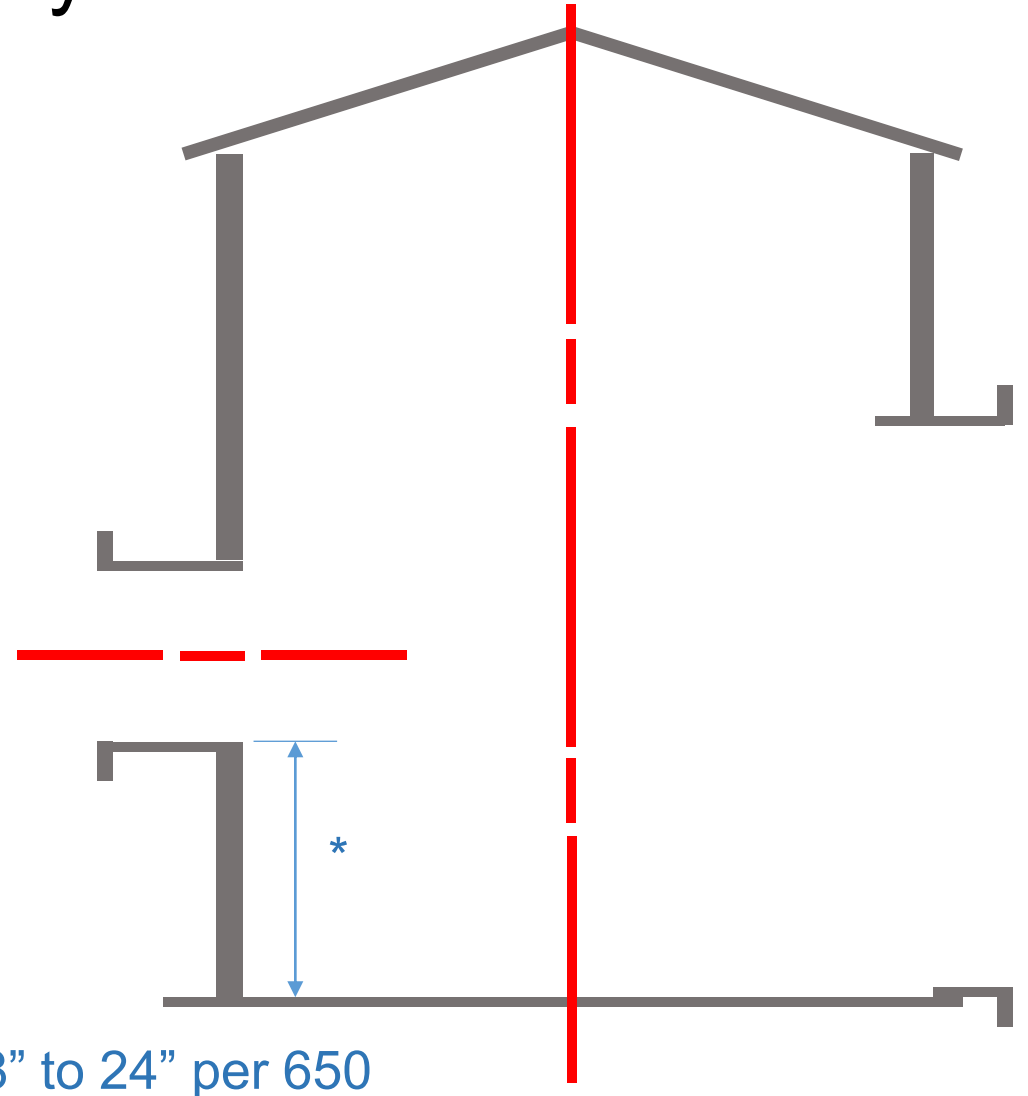
safety. (2 of 4)

Hazards reduction may be result by any number of reasons:

2) A brighter, more well lit workplace.

a) A standard 24" x 36" cleanout opening has **275%** more open area than a standard 20 inch diameter manhole.

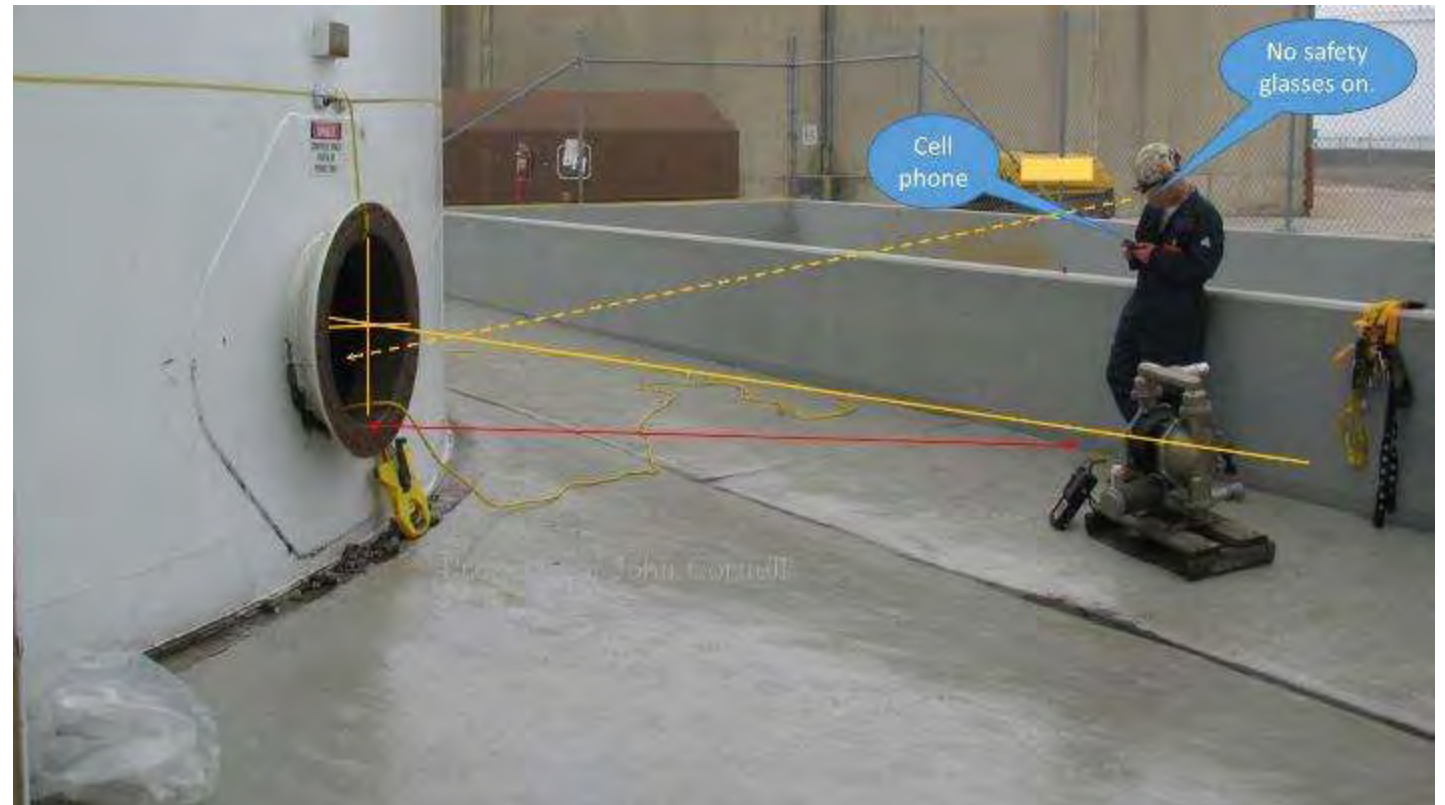
b) This provides for a much safer initial entry due to increase lighting.



safety. (3 of 4)

Hazards reduction may be result by any number of reasons:

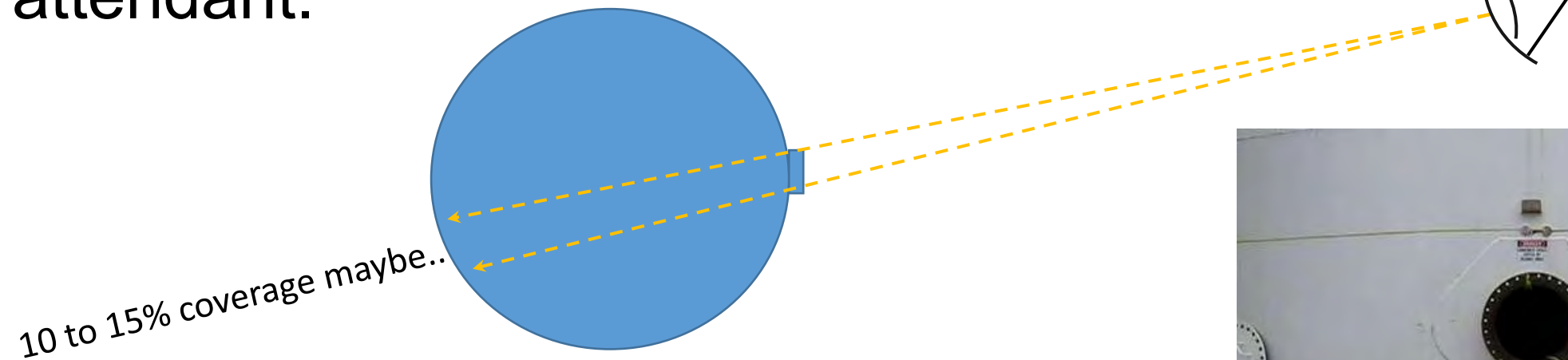
3) An improved visualization of the workplace by the outside attendant.



safety. (4 of 4)

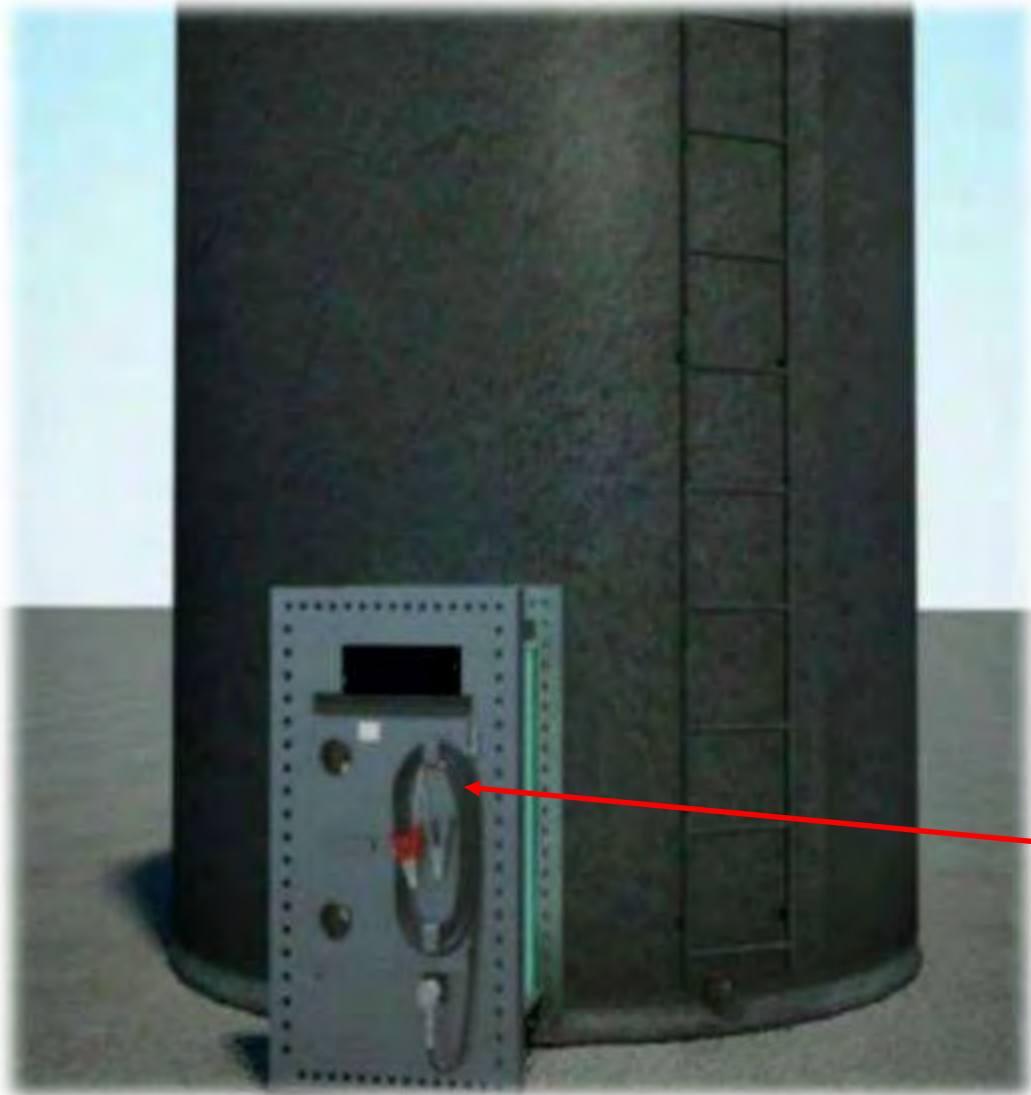
Hazards reduction may be result by any number of reasons:

3) An improved visualization of the workplace by the outside attendant.



Modern equipment can save energy and lower VOCs.

According to a recent white paper published in 2011, the carbon footprint of each tank that is equipped with the most modern heating devices can be measurably reduced.



Energy efficient heaters that mount directly into a typical 24" x 36" cleanout door.

Tanks are not designed for the products being stored.

1) Drilling fluids with a specific gravity of $\sim 4.2 \times$ water.

2) Asphalt with a specific gravity of $> 2.5 \times$ water.

API 12F: Tanks covered by this specification are designed to be filled with water.

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DOT Part 195 PHMSA Training Provider for Breakout tanks.
Oil Production Tank Expert – Training Provider.
Fiberglass and Plastic Tank Experts – Training Provider.



Specification for Shop Welded Tanks for Storage of Production Liquids



API SPECIFICATION 12F
TWELFTH EDITION, OCTOBER 2008

EFFECTIVE DATE: APRIL 1, 2009

5 Design

5.1 General

Tanks covered by this specification have been designed using established engineering calculations to determine minimum metal thickness and bolting specifications for each size tank filled with water (62.37 lb/ft^3 @ 60°F) and at the internal pressure specified in Table 1, Column 2. In order to assure structural stability and integrity, additional metal thickness has been added to that determined by calculation. The minimum metal thickness specified in this standard shall in no case be decreased.