

Mechanical Integrity

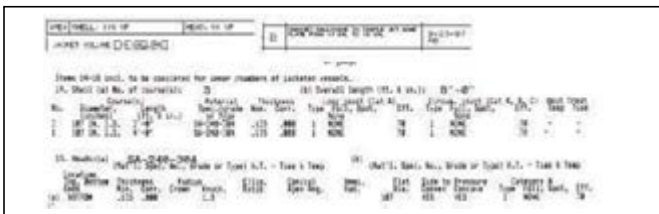
Documentation Discrepancies



By: William Lape

When conducting mechanical integrity audits I always make it a practice to not only verify that pressure vessel U sheets and certification drawings are on file, but to cross check them against the physical equipment. This is a recommended best practice to help determine if there have been any modifications made to the pressure vessel that may not have been properly certified.

Recently, however, I happened upon a product tank with a refrigeration jacket that exhibited an unusual discrepancy. The nameplate, as shown above, indicated that the volume of the refrigeration jacket was 13 gallons. However, both the drawing and the U sheet showed that the refrigeration jacket had been expanded to cover the bottom of the tank, increasing the volume to 19 gallons (0.114 times the square foot area to get gallons for this manufacturer).



Note: only the relevant portions of the nameplate, U sheet, and drawing have been shown to protect the manufacturer, who shall remain nameless.

At first, I simply assumed that the wrong U sheet or Certification Drawing was on file, but this assumption was proven wrong upon review of both the National Board Number and the manufacturer's serial number.

So, what needs to be done at this point? While having a new nameplate created and the tank recertified is an option, it is potentially more involved than a simple duplicate nameplate, as the manufacturer in question puts a duplicate nameplate on the exterior of the tank, while applying the original nameplate directly to the jacket underneath the insulation and outer shell. This drastically increases the work and cost involved with recertification if the original is not updated. At the very least, the original would have to be examined to determine if it was correct.

So, are there any other options? Given that this modification was obviously done during manufacture and not after the fact, we can document the conversation with the manufacturer about the discrepancy and file it with our process safety information.

With this particular issue, it is also important that the maximum intended inventory be reviewed to make sure that it is calculated using the proper volume. While it is unlikely that such a difference in volume will change whether or not the system is covered under 29 CFR 1910.119 and 40 CFR Part 68, it is vital that your inventory calculations are as accurate as possible.

The other interesting thing to note is that the product tank in question is 20 years old. During all of that time, nowhere was this discrepancy flagged. The takeaway from all of this is: Make sure that whomever is doing your MI audits is cross checking documentation against the physical equipment.

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