File: ULC-S600A
ULC-S630
ULC G5.2

June 11, 2015

STANDARDS BULLETIN 2015-12

INTERPRETATION: Clauses 3.6.3 & 3.8.1

ULC-S630-00
Standard for Shop Fabricated Steel Aboveground Vertical Tanks for Flammable and Combustible Liquids

The following is an interpretation by the ULC Standards Committee on Stationary Steel Storage Containers for Flammable and Combustible (ULC-S600A) on ULC-S630-00, Standard for Shop Fabricated Steel Aboveground Vertical Tanks for Flammable and Combustible Liquids. The request for interpretation originates from the Clauses listed below.

Issue 1:

Clause 3.6.3 of ULC-S630-00 states:

3.6.3 Where a full penetration joint is specified, it shall be considered as a weld joint in which the total thickness of weld metal is a minimum of 100% of the thinner of the parent metal thicknesses.

Question 1A:

If, in the through thickness direction, the thickness of the weld metal is reduced to some value less than 100% due to the presence of welding defects such as lack of penetration is the weld acceptable to the requirements of clause 3.6.3?

Answer: No

Rationale:
A complete surface inspection and leak test are required to determine defects present. Assuming the defects are surface defects, a weld that is not a full penetration will be found during the complete surface inspection. A full penetration joint is required, it shall be considered as a weld joint in which the total thickness of weld metal is a minimum of 100% of the thinner of the parent metal thicknesses.

Question 1B:

If a floor weld contains cracks, areas of incomplete penetration, and/or areas of lack of fusion and passes the leak test is the weld acceptable to the requirements of the Standard?

Answer: No

Rationale:
A leak test and complete surface inspection are required to determine defects present. Assuming the defects are surface defects, a weld that is not a full penetration will be found during the complete surface

inspection which is not acceptable due to; visible cracks, areas of incomplete penetration, and/or areas of lack of fusion etc...

Question 1C:

If the floor plate welds were inspected with ultrasonic techniques to the requirements of CSA W59 Clause 11 and defects were found that would be rejectable to CSA W59 Clause 11 can the defects be left in as is and still meet the requirements of the Standard?

Answer: Yes

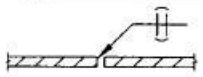
Rationale:
CAN/ULC-S630-00 only requires a complete surface inspection not an ultra-sonic inspection, accordingly the defects can be left in, as long as, the tank meets the requirements in Clause 8.1.1, i.e. surface inspection and leak test. This standard does not require nor specify using ultrasonic techniques, as required in CSA W59.

Issue 2:

Clause 3.8.1 of ULC-S630-00 states:

3.8.1 Bottoms of tanks shall be fabricated of not more than four pieces. When two or more pieces are used, joints shall be of the double welded full penetration butt type. (Refer to Joint S3.2 Figure 3.)

Joint S3.2 Figure 3

 JOINT S3.2	Double Welded Square Butt Joint Full Penetration	For all diameters and metal thicknesses.

Question 2:

Can a partial penetration weld joint be used instead of a full penetration weld joint in fabricating the floor plates?

Answer: No

Rationale:
Clause 3.8.1 specifically specifies a “full penetration” not a “partial penetration”, therefore a partial penetration weld joint is not acceptable.

Should you require additional information, please contact Caitlin D’Onofrio at (613) 368-4430 or by email at Caitlin.DOnofrio@ul.com.

This Standard can be ordered by emailing publications@ul.com and specifying ULC-S630-00, Standard for Shop Fabricated Steel Aboveground Vertical Tanks for Flammable and Combustible Liquids.

Yours truly,

ULC Standards
171 Nepean Street, Suite 400, Ottawa, ON K2P 0B4, Canada
T: 613.755.2729 / F: 613.231.5977 / W: ULC.ca

ULC Standards

G. Rae Dulmage
Director, Standards Department

ULC Standards
171 Nepean Street, Suite 400, Ottawa, ON K2P 0B4, Canada
T: 613.755.2729 / F: 613.231.5977 / W: ULC.ca