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March 23, 2021

TO: Anhydrous Ammonia Code of Practice Sites
FROM: Nadine Frost, Director Policy & Industry Standards

RE: New Standards for ammonia nurse tanks coming into force under CSA B620/B622-20

This is a reminder to Anhydrous Ammonia Code sites that as of May 31, 2021 anhydrous ammonia tanks must be in compliance with Transport Canada regulations incorporating CSA B620/622-20 Standards[1].

The purpose of this memo is to provide an update to all Anhydrous Ammonia Code of Practice (Code) sites on relevant changes in the CSA B620/622-20 Standard, incorporated by reference into the *Transportation of Dangerous Goods Regulations* (TDGR). The updated Standard comes into force May 31, 2021 following a six-month transition period since its publication.

This update is intended to complement the Transport Canada TDG Bulletin that was issued November 17, 2020, "*New requirements for nurse tanks transporting anhydrous ammonia in Canada"*, available here: https://tc.canada.ca/en/dangerous-goods/transportation-dangerous-goods-publications/new-requirements-nurse-tanks-transporting-anhydrous-ammonia-canada

Additionally, upon publication of the updated Standards, Transport Canada published a Bulletin summarizing the major changes incorporated into the new editions of the Standards, *Significant changes from CSA B620-14, CSA B621-14 and CSA B622-14 to CSA B620:20, CSA B621:20 and CSA B622:20.* This is available here: https://tc.canada.ca/en/dangerous-goods/containers/tank-trucks-trailers-tc-portable-tanks/significant-changes-csa-b620-14-csa-b621-14-csa-b622-14-csa-b62020-csa-b62120-csa-b62220

The updates that are of relevance to Ammonia Code sites that included in this Bulletin are as follows:

1. Emergency discharge control requirements coming into force January 1, 2022
2. New leakage test requirements
3. TC 51 nurse tank specification re-introduced into the Standard
4. Updates to mounting and rear-end protection requirements

1. Emergency discharge control requirements coming into force January 1, 2022:

For all nurse tanks over 10,000 L and all interconnected nurse tanks, emergency discharge control devices that meet the B620/622 Standard must be in place by January 1, 2022. This requirement is consistent with **Protocol C10.5 in the Ammonia Code of Practice**[2], where pull-

[1] The CSA B620/B622 Standards set out criteria for the design and maintenance of Transport Canada-approved portable pressure tanks, including TDUs and nurse tanks used in the transportation and application of anhydrous ammonia fertilizer. Due to the nature of the business, the operation of these tanks (loading/unloading, towing on public roads, etc.) is covered under the *Transportation of Dangerous Goods Regulations* (TDGR). The CSA B620/622 Standards are published every five years, and are incorporated by reference into the TDGR.

2 Protocol C10.5 currently reads: "All new single nurse tanks with a capacity of 10,000 litres (2,642 USWG) or more, or any multiple nurse tank configurations purchased or coming into service on or after January 1, 2017, must be equipped with pull-away protection. Effective January 1, 2022, all existing nurse tanks (single with capacity of 10,000 litres (2,642 USWG) or more, or any multiple nurse tank configurations purchased before January 1, 2017, must be equipped with pull-away protection; unless regulations require them sooner."

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away protection requirements have been phased in since January 1, 2017. All Ammonia Code sites received notice of the phase-in timelines for Protocol C10.5 in Bulletin #03-2016.[3]

A brief description of the requirements is included below, with direct reference to the relevant clauses in the B622 and B620 Standards.

B622:20 SR 55 i) mandates the new requirements for emergency discharge control:

> ***B622:20 SR 55 (i):*** *after January 1, 2022, for interconnected nurse tanks or nurse tanks with a capacity of 10,000L or greater, it is equipped with an appropriate emergency discharge control as specified in Clause 6.2.9.3 of CSA B60:20.*

B620-6.2.9.3 c) and d) specify the requirements that need to be met by the emergency discharge control system:

> ***B620-6.2.9.3 Emergency discharge control:*** *The following requirements shall apply to portable tanks that are loaded and unloaded without being removed from the vehicle:*
>
> *c) Despite Clause 5.3.2.5 b), c), and d), for nurse tanks, an off truck emergency shutdown system is not required if the tank is equipped with a remote means of closure operable from the tractor and incorporates a passive emergency shutdown system.*
>
> *d) Each discharge line for liquid intended for service transporting a dangerous good, other than argon, carbon dioxide, helium, krypton, neon, nitrogen, and xenon, shall be equipped with a remotely activated internal self-closing stop valve.*

To meet the requirements in (c) above for nurse tanks, the system must include a passive emergency shutdown system. A passive emergency shutdown system is a system that automatically shuts off the flow of product without the need for human intervention within 20 seconds of the release caused by complete hose separation. There are many ways to achieve these requirements. For example, this can be accomplished with a smart hose, or a snappy joe between the connection point on the wagon and the applicator. Additionally, the emergency shutdown system must be able to be operated remotely, operable from the tractor seat.

The requirement of 6.2.9.3 d) was <u>not</u> written with the intent to require all nurse tanks to be retrofitted with internal self-closing (ISC) valves. Steps are underway to amend the language in B620-6.2.9.3 d) to reflect this intent. Fertilizer Canada will alert all Ammonia Code sites of any actions required once revised language is accepted at the CSA B620/621/622 Technical Committee level, anticipated for June 2021.

There are multiple ways that emergency discharge control systems can meet the requirements that are set out in the Standard. However, it is important to note that **a design engineer must provide certification that a system meets the requirement**s as per B622-5.2.6 g). The remote means of closure identified in 6.2.9.3 c) does not need to certified by a design engineer, so long as it shuts of product flow when activated. Additionally, the registered inspection facility may also need to provide certification that the system is installed in accordance with the design engineer certification, as per B622-5.2.6 h).

> ***B622:20 – 5.2.6:***
> ***g)*** *The design for the emergency discharge control shall be certified by a design engineer. The certification shall consider any specifications of the original*

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3 These changes were communicated to Ammonia Code sites by Bulletin #03-2016 indicating phase-in timelines (coming into force January 1, 2017 for new tanks, and January 1, 2022 for all tanks), and providing clarification on the pull-away protection devices that meet requirements for Protocol C 10.5.

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> *component manufacturer and shall detail the operation of the means to shut off the flow of product, including the parameters (e.g., temperature, pressure, product types) within which the shut-off means is designed to operate. All components of the discharge system that are integral to the design shall be included in the certification. A copy of the design certification shall be provided to the owner of the tank on which the emergency discharge control equipment is installed.*
> ***h)** Unless equipment is installed or removed as part of regular operation (e.g., a hose), the emergency discharge control shall be installed under the supervision of a tank inspector. The tank inspector shall certify that the equipment is installed and tested, where it is possible to do so without damage to equipment, in accordance with the design engineer's certification. The registered facility performing the installation and testing shall provide the certification in accordance with Clauses 5.1.7 and 8.2.1 of CSA B620:20 to the owner of the tank on which the emergency discharge control equipment is installed.*

Ammonia Code auditors will be looking for compliance with Protocol C10.5, *Nurse Tank Emergency Discharge Control*. Compliance with Protocol C10.5 will be indicated by inspection of equipment and demonstration of functionality. Additionally, documentation (e.g. design engineer certificates) must be referenced to ensure that tanks are compliant with the requirements of the B620/622 Standards. Please ensure these are available for Ammonia Code site audits once the requirements come into force January 1, 2022.

2. <u>New leakage test requirements:</u>

All ammonia nurse tanks will be required to undergo an annual leakage test in accordance with the updated B620 Standard, as per B620 Clause 7.2.5. Please note that Annex A.4 b) of B620:20 provides for an 18 month phase-in beyond the coming into force date (May 31, 2021) for new tests or inspections under the B620 Standard. Based on this phase-in, all nurse tanks will need to have undergone the new leakage test by November 31, 2022.

3. <u>TC 51 nurse tank specification re-introduced into the Standard:</u>

The TC 51 tank specification has been added back into the Standard. The Standard now defines nurse tanks to include TC 51 tanks, specifically, as the tank used for agricultural anhydrous ammonia. This means that the construction requirements for TC 51 nurse tanks recognize the unique needs of the anhydrous ammonia industry.

4. <u>Updates to mounting and rear-end protection requirements:</u>

The updated Standard includes new requirements for mounting portable tanks and rear-end protection. These requirements for **new TC 51 nurse tanks** need to be verified by a registered design engineer.

> "*A CSA B620 registered design engineer must certify new TC 51 nurse tank piping when connected after the first manual shut-off valve. The piping must also be installed by a CSA B620 registered facility. The tank owner must keep all records of this certification*." – Transport Canada TDG Bulletin, November 17, 2020

Code-compliant sites are encouraged to carefully review the CSA B620/622-20 Standards, to ensure compliance of your operation. All sites certified under the Ammonia Code must be fully compliant with the Standards.

Compliance with the CSA B620/622-20 Standards is required for **ALL** ammonia nurse tanks. Sites are encouraged to reach out their farmer customers to provide a copy of this Bulletin to inform them of the relevant updates.

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If you have specific technical questions regarding your compliance with the new Standards, you are encouraged to reach out at to Transport Canada at: TDGMOD-TMDContenants@tc.gc.ca. Additionally, Transport Canada has information on B620-related Bulletins and Advisories available on their website, here: https://tc.canada.ca/en/dangerous-goods/containers/tank-trucks-trailers-tc-portable-tanks

Please do not hesitate to reach out to the coordinates below.

Regards,

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