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Mahi Haumarū Aotearoa

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Health and Safety at Work (Hazardous Substances—Additional and Modified Requirements for Tank Wagons) Safe Work Instrument 2023

This safe work instrument is approved under section 227 of the Health and Safety at Work Act 2015 by the Minister for Workplace Relations and Safety, being satisfied that—

- (a) appropriate consultation has been carried out under section 227(3) of that Act; and
- (b) in accordance with regulation 16.46(2) of the Health and Safety at Work (Hazardous Substances) Regulations 2017, for the purposes of clauses 6 to 18 of this safe work instrument, compliance with the provisions of the Regulations that apply to certain tank wagons will not appropriately control risk associated with those tank wagons.

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Safe Work Instrument

1 Title

This is the Health and Safety at Work (Hazardous Substances—Additional and Modified Requirements for Tank Wagons) Safe Work Instrument 2023.

2 Commencement

This safe work instrument comes into force on 31 July 2023.

3 Overview

In this safe work instrument—

- (a) clause 6 sets out additional design and construction requirements to be complied with under regulation 16.46(5) that relate to the ability of a tank to withstand stresses:
- (b) clause 7 modifies the design and construction requirements in regulation 16.7 to the extent they apply to a large tank wagon with free vents:
- (c) clause 8 modifies the design, construction, and installation requirements in regulation 16.12 that apply to fittings on a tank:
- (d) clause 9 modifies the requirements in regulation 16.13 that limit the capacity of a tank on a tank wagon:
- (e) clause 10 modifies the design and construction requirements in regulation 16.15 for minimising the loss of a hazardous bituminous substance when it is being transferred from a tank:
- (f) clauses 11 and 12 modify the design and construction requirements in regulation 16.20 for the stability and manoeuvrability of certain road tank wagons:
- (g) clause 12 modifies the design and construction requirements in regulation 16.22 for the rear-end collision protection of certain tank wagons:
- (h) clause 14 modifies the design and construction requirements in regulation 16.23 for the rear run-under protection of certain tank wagons:
- (i) clause 15—
 - (i) modifies the requirements in regulation 16.34 that an existing tank wagon must meet before it can be issued with a pre-commissioning compliance certificate; and

- (ii) sets out additional requirements applying to a PCBU with management or control of an existing tank wagon, if the tank wagon does not meet the modified requirements in regulation 16.34:
- (j) clause 16 modifies the timeframe within which an in-service compliance certificate must be obtained under regulation 16.36:
- (k) clause 17—
 - (i) modifies the control and supervision requirements in regulation 16.40 that apply when a tank wagon is spraying or applying a hazardous bituminous substance onto a road surface; and
 - (ii) sets out additional requirements applying to a PCBU with management or control of such a tank wagon:
- (l) clause 18 modifies the requirements in regulation 16.45 to restrict access to a road tank wagon.

4 Interpretation

- (1) In this safe work instrument, unless the context otherwise requires,—

Act means the Health and Safety at Work Act 2015

hazardous bituminous substance means a substance used in roading that—

- (a) contains bitumen; and
- (b) is a hazardous substance under the Regulations

loader-refueller means a tank wagon that is designed and used as—

- (a) a fertiliser loader; and
- (b) an aircraft refueller

Regulations means the Health and Safety at Work (Hazardous Substances) Regulations 2017.

- (2) Any term or expression that is defined in the Act or the Regulations and used, but not defined, in this safe work instrument has the same meaning as in the Act or the Regulations.

5 Application

- (1) Clauses 6 to 18 of this safe work instrument apply to a tank wagon that is used to transport and transfer a hazardous bituminous substance, other than those hazardous bituminous substances with a flash point of 60 degrees or less.
- (2) Clauses 13 and 14 of this safe work instrument apply to a tank wagon that is a loader-refueller.

Additional and modified requirements for large tank wagons with capacity of at least 2 000 L

6 Additional requirements to withstand expansion during heating and cooling

- (1) This clause applies to a tank wagon to which this safe work instrument applies, other than a loader-refueller.

- (2) For the purposes of regulation 16.46(4)(a) and (b) of the Regulations, a relevant PCBU must ensure that—
- (a) a tank is designed and constructed so that, when undergoing stresses expected to be generated by the tank, its contents, and the fittings permanently attached to the tank, the tank allows for the expansion and contraction of its contents during heating and cooling cycles by means of a venting configuration that incorporates a free vent or pressure vacuum vent; and
 - (b) if the tank wagon incorporates a free vent, the free vent—
 - (i) is open to the atmosphere; and
 - (ii) is designed to prevent rainwater or foreign matter entering the tank; and
 - (iii) is straight, or constructed with connections that allow disassembly into straight sections, to enable visual inspection and regular cleaning; and
 - (iv) has a nominal bore of at least 50 mm; and
 - (v) prevents unsafe pressures during all tank operations, including during filling or emptying the tank wagon; and
 - (c) if the tank wagon incorporates a pressure vacuum vent, the pressure vacuum vent—
 - (i) vents to the atmosphere; and
 - (ii) operates at pressures suitable for the tank; and
 - (iii) is marked with the following information:
 - (A) the name of the manufacturer;
 - (B) identification of the model;
 - (C) discharge capacity;
 - (D) rated pressure; and
 - (iv) is designed and positioned to minimise the effect of a hazardous bituminous substance contacting the vent mechanism; and
 - (v) is inspected and tested annually to ensure it is operating as intended; and
 - (vi) is accompanied by alternative venting during the transfer of a hazardous bituminous substance; and
 - (vii) prevents unsafe pressures during all tank operations, including during filling or emptying the tank wagon.

7 Modified requirements to withstand stress of load where free vent incorporated

- (1) This clause applies to a tank wagon to which this safe work instrument applies, other than a loader-refueller, that incorporates a free vent.
- (2) For the purposes of regulation 16.46(4)(c) of the Regulations, regulation 16.7 applies to a tank wagon to which this clause applies as if regulation 16.7(1) were replaced by the following:

- "(1) A relevant PCBU must ensure that a tank incorporating a free vent is designed and constructed so that, when undergoing stresses expected to be generated by the tank, its contents, and the fittings permanently attached to the tank, it complies with the following conditions:
- (a) when the tank is in an upright position,—
 - (i) if the tank contains a liquid, there is no visible leakage of any liquid from the tank except for leakage of liquid or condensate from the free vent due to normal operation and heating, in which case —
 - (A) the leakage must be collected in a container; and
 - (B) the container must be positioned lower than the vent outlet in order to prevent a liquid seal forming; and
 - (ii) the free vent must be positioned to eliminate spillage through sloshing during transport:
 - (b) when the tank is rotated 90° about the longitudinal axis and resting on either side, at least half of its liquid contents must be retained:
 - (c) when the tank is inverted 180°, liquid must not be allowed to leak from the tank."

8 Fittings impact resistance

For the purposes of regulation 16.46(4)(c) of the Regulations, regulation 16.12 applies to a tank wagon to which this safe work instrument applies, other than a loader-refueller, as if regulation 16.12(1) were replaced by the following:

- "(1) A relevant PCBU must ensure that the fittings on a tank positioned below the upper liquid level for the tank are provided with a shutoff valve that is—
- (a) suitable for service at design temperatures and pressures; and
 - (b) located as close as reasonably practicable to the tank shell; and
 - (c) positioned so as to minimise any accidental damage."

9 Maximum compartment size

For the purposes of regulation 16.46(4)(c) of the Regulations, regulation 16.13 applies to a tank wagon with heating capabilities to which this safe work instrument applies, other than a loader-refueller, as if regulation 16.13(1)(b) were replaced by the following:

- "(b) in the case of a tank wagon with heating capability, the compartment does not have a capacity of more than 35 000 L."

10 Loss minimisation while transferring liquids or gases

- (1) For the purposes of regulation 16.46(4)(c) of the Regulations, regulation 16.15 applies to a tank wagon to which this safe work instrument applies, other than a loader-refueller, in the way modified by subclause (2), which is an alternative means of compliance with regulation 16.15(1) to (3).
- (2) A relevant PCBU must ensure that—

- (a) the pipe used for transferring a hazardous bituminous substance from a tank wagon is designed and constructed with at least 2 means of shutting off the flow of the substance; and
- (b) each means of shutting off the flow of the hazardous bituminous substance can do so within 20 seconds of being activated; and
- (c) at least one means of shutting off the flow of the hazardous bituminous substance is located at the tank wall; and
- (d) there is a second means of shutting off the flow.

Modified requirements for large road tank wagons with capacity of at least 2 000 L

11 Stability and manoeuvrability

Subject to clause 12, for the purposes of regulation 16.46(4)(c) of the Regulations, regulation 16.20 applies to a tank wagon to which this safe work instrument applies, other than a loader-refueller, as if regulation 16.20(1)(a) were replaced with the following:

- "(a) a static roll threshold of—
- (i) 0.35 g, for a tank wagon that is designed and constructed to spray or apply hazardous bituminous substances onto road surfaces:
 - (ii) 0.45 g, for any other tank wagon:"

12 Stability and manoeuvrability requirements for certain existing tank wagons

- (1) This clause applies to a tank wagon to which this safe work instrument applies, other than a loader-refueller, that—
 - (a) is designed and constructed before the commencement date of this safe work instrument; and
 - (b) is not designed and constructed to spray or apply a hazardous bituminous substance onto a road surface; and
 - (c) does not undergo major works after the commencement date of this safe work instrument; and
 - (d) complies with rule 3.15 of Land Transport Rule: Vehicle Dimensions and Mass 2016.
- (2) For the purposes of regulation 16.46(4)(c) of the Regulations, regulation 16.20 applies to a tank wagon to which this clause applies as if regulation 16.20(1)(a) were replaced with the following:

"(a) a static roll threshold of 0.35 g:"
- (3) For the purposes of this clause, **major works** means a change to, or replacement of, the chassis or bogie of a tank wagon that will influence the static roll threshold of the tank wagon.
- (4) This clause expires on 1 January 2040.

13 Rear-end collision protection

- (1) This clause applies to:
 - (a) a tank wagon to which this safe work instrument applies that is used to spray or apply a hazardous bituminous substance onto a road surface:
 - (b) a loader-refueller.
- (2) For the purposes of regulation 16.46(4)(c) of the Regulations, regulation 16.22 applies to a tank wagon to which this clause applies in the way modified by subclause (3), which is an alternative means of compliance with regulation 16.22(1).
- (3) For the purposes of establishing compliance with regulation 16.22(1), a relevant PCBU who is determining the distribution of a static load—
 - (a) must ensure that the tank wagon is fitted with a draw beam or a rear bumper, unless the tank wagon is a loader-refueller; and
 - (b) may, in addition to the central 1.5 m of the rear of the tank wagon, take into account the following:
 - (i) for a loader-refueller, the bucket:
 - (ii) for any other tank wagon to which this clause applies, the draw beam or, if one is not fitted, the bumper, provided that—
 - (A) the draw beam or the bumper (as the case may be) extends past the rear of the tank by a minimum of 0.5 metres; and
 - (B) the rear wall of the tank is forward of the vertical plane that passes through the rear-most point of the tank wagon's wheel rims.

14 Rear run-under by small vehicle

- (1) This clause applies to:
 - (a) a tank wagon to which this safe work instrument applies that is used to spray or apply a hazardous bituminous substance onto a road surface:
 - (b) a loader-refueller.
- (2) For the purposes of regulation 16.46(4)(c) of the Regulations, regulation 16.23 applies to a tank wagon to which this clause applies in the way modified by subclause (3), which is an alternative means of compliance with regulation 16.23(1) and (2).
- (3) A relevant PCBU must ensure that the rear wall of the tank is forward of the vertical plane that passes through the rear-most point of the tank wagon's wheel rims.

Additional and modified compliance certification requirements

15 Requirements for issue of pre-commissioning compliance certificates

- (1) This clause applies to an existing tank wagon to which this safe work instrument applies, other than a loader-refueller, that immediately before the commencement date of this safe work instrument did not have a pre-commissioning compliance certificate.
- (2) For the purposes of regulation 16.46(4)(c) of the Regulations, regulation 16.34 applies to a tank wagon to which this clause applies as if—

- (a) regulation 16.34(2) were replaced with the following:
 - "(2) Despite subclause (1), a pre-commissioning compliance certificate is not required for—
 - (a) a tank wagon with a tank capacity of less than 450 L that carries a low-hazard hazardous substance; or
 - (b) a tank wagon with a tank capacity of less than 2 000 L that is manufactured by an approved fabricator in accordance with the terms and conditions of the fabricator's approval; or
 - (c) an existing tank wagon being operated by a PCBU before the due date, so long as the PCBU complies with any applicable compliance plan"; and
- (b) regulation 16.34(4) were replaced with the following:
 - "(4) The compliance certifier may issue a pre-commissioning certificate if satisfied that—
 - (a) each design component of the tank wagon specified in Schedule 24 as requiring a pre-commissioning compliance certificate has been constructed and installed in accordance with—
 - (i) a design for which a design compliance certificate has been issued under regulation 16.31; or
 - (ii) the standard applying to the tank wagon at the time of its construction; and
 - (b) each compartment of the tank wagon that is likely to be operated under pressure complies with subclause (5)."
- (3) For the purposes of regulation 16.46(4)(a) and (b) of the Regulations, if, in relation to an existing tank wagon being operated by a PCBU before the due date, the compliance certifier is not satisfied of the matters set out in regulation 16.34(4)(a) as modified by subclause (2)(b),—
 - (a) the relevant PCBU must, as soon as reasonably practicable, give a compliance plan to WorkSafe for WorkSafe's consideration setting out—
 - (i) the compliance certifier's view of the extent to which each design component has been constructed and installed in accordance with the standard applying to the tank wagon at the time of its construction; and
 - (ii) the information the compliance certifier relied on to form that view; and
 - (iii) the timeframe (if any) within which the design component will be altered so that it meets the applicable standard; and
 - (b) if WorkSafe declines to approve the compliance plan, the relevant PCBU may, within 20 working days after the date on which WorkSafe advises the PCBU of the reasons for its decision or any further period that WorkSafe allows,—
 - (i) make amendments necessary to enable WorkSafe to approve the plan; and
 - (ii) submit the plan to WorkSafe for its approval; and

(c) if WorkSafe approves the compliance plan, the PCBU may from time to time submit amendments to the plan to WorkSafe for its approval”.

(4) For the purposes of this clause,—

applicable compliance plan means a compliance plan approved by WorkSafe under subclause (3).

due date means the date that is three years after the commencement date of this safe work instrument

existing tank wagon means a tank wagon that is designed and constructed immediately before the commencement date of this safe work instrument.

16 Requirements for issue and renewal of in-service compliance certificates

For the purposes of regulation 16.46(4)(c) of the Regulations, regulation 16.36 applies to a tank wagon to which this safe work instrument applies, other than a loader-refueller, as if regulation 16.36(1) were varied in the following manner:

"(1) A PCBU with management or control of a tank wagon must obtain an in-service compliance certificate for the tank wagon not more than 3 years after—

(a) either—

(i) the date of the pre-commissioning compliance certificate issued under regulation 16.34 for the tank wagon; or

(ii) the date of manufacture of the tank wagon, if the tank wagon did not require a pre-commissioning compliance certificate; or

(b) the date of the most recent in-service compliance certificate issued under this regulation."

Additional and modified operating requirements

17 Transfer of liquid or gas

(1) For the purposes of regulation 16.46(4)(c) of the Regulations, regulation 16.40 applies to a tank wagon to which this safe work instrument applies, other than a loader-refueller, as if regulation 16.40(1) were varied in the following manner:

"(1) A worker who transfers a liquid or gas to or from any tank wagon must—

(a) attend the tank wagon from the time the transfer of the hazardous substance commences and until it is completed unless the requirements of regulation 16.41 are met; and

(b) ensure that, from the time the transfer of the hazardous substance commences until it is completed, the tank wagon does not move unless the tank wagon is spraying or applying a hazardous bituminous substance onto a road surface as part of a road sealing process; and

(c) ensure that all tank openings are securely closed after the transfer of hazardous substance is complete."

(2) For the purposes of regulation 16.46(4)(a) of the Regulations, a PCBU with management or control of a tank wagon that is spraying or applying a hazardous

bituminous substance onto a road surface as part of a road sealing process must ensure that, so far as reasonably practicable, the tank wagon is either—

- (a) under direct supervision of a competent person; or
 - (b) incorporated into a mobile chain of in-situ stabilisation equipment.
- (3) In this clause, **competent person** means a person who has received information, instruction, and training in accordance with regulation 4.5 of the Regulations.

18 Persons with access

For the purposes of regulation 16.46(4)(c) of the Regulations, regulation 16.45 applies to a tank wagon to which this safe work instrument applies, other than a loader-refueller, as if regulation 16.45(1) were varied in the following manner:

- "(1) A PCBU with management or control of a road tank wagon with a tank capacity of at least 2 000 L must, at any time a hazardous bituminous substance (or residue of a hazardous bituminous substance) is contained in the tank, ensure, so far as is reasonably practicable, that no person is in or on the tank wagon except the persons who—
- (a) are necessary for the operation of the tank wagon or the transfer of its contents; and
 - (b) carry out maintenance, inspection, training, or management duties."

Made at Wellington on 6 June 2023.

Hon Michael Wood
Minister for Workplace Relations and Safety

Date of notification in *Gazette*: 8 June 2023

This safe work instrument is administered by WorkSafe New Zealand.