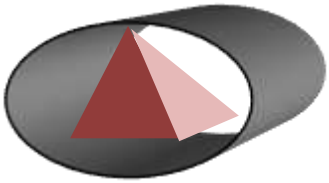

PETROLEUM INDUSTRY TRANSPORT SAFETY FORUM & FUEL DISTRIBUTORS INDUSTRY SAFETY COMMITTEE

SUBMISSION TO WORKSAFE on the FLAMMABLE LIQUIDS ROAD TANK WAGONS CODE OF PRACTICE

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AUGUST 2017

PETROLEUM INDUSTRY TRANSPORT SAFETY FORUM and FUEL DISTRIBUTORS INDUSTRY SAFETY COMMITTEE SUBMISSION TO WORKSAFE ON FLAMMABLE LIQUIDS ROAD TANK WAGONS CODE OF PRACTICE

1.0 Petroleum Industry Transport Safety Forum & Fuel Distributors Industry Safety Committee

1.1 The Petroleum Industry Transport Safety Forum and Fuel Distributors Industry Safety Committee (The group's, We and Our) are voluntary organisations made up of delegated fuel industry participants and delivery agents assembled under the general auspices of Road Transport Forum NZ.

1.2 The two-group's primary purpose is to draw on member's substantial experience and provide representation to, and further the interests of, participants involved in the safe transport, storage and handling of petroleum products.

1.3 Group members represent the interests of the major oil and fuel distribution companies in New Zealand[1]. Our estimation is that the interests of over ninety five percent of industry players and stakeholders are conveyed through these groups.

1.4 We have provided this submission on the basis that this is a semi-formal consultation phase limited to those closest to the industry and that a formal public consultation phase will take place later this calendar year. On that basis and given the relatively short time frame comments in this submission are made on the understanding there will

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[1] Including but not limited to: Allied Petroleum Ltd, BP Oil NZ Ltd, Z Energy Ltd, Pacific Fuel Haul, MFI Engineering, Tanker Engineering, Tranzliquid Logistics Ltd, Farmlands, South Fuels/ North Fuels, Allied Petroleum / Wealleans, Toll, McFall/Rural Fuels, Waitomo fuels, McKeowns Linfox Logistics and RD Petroleum

be a further opportunity for us to undertake a more thorough review later at the public consultation phase. Notwithstanding we are grateful to Worksafe for seeking our input during this initial consultation phase.

1.5 In addition, as discussed with Worksafe officials, the ACOP covers a variety of life cycle phases, such as design, build, repair and operation of a tank wagon. Therefore, where the scope of the requirement is intended to be limited to design, such as the reference to a maximum ullage, we request that this be made explicit in the ACOP. Retaining the current inconsistency between design and on-road operational practice will hinder compliance.

2.0 Foreword

2.1 Essentially the draft is a re-write of the existing code of practice and does not introduce too many technical updates. A number of the comments we provide address similar issues. Rather than deal with them as a collective we have itemised them sequentially as the draft has been worked through. That should make it easier for drafters to follow our feedback.

2.2 The amended numbering and referencing format makes the code significantly easier to browse and work through and we believe those subtle changes will assist compliance improvements.

2.3 Throughout the document measurements are quoted in a variety of units. Some sections/clauses use M (metres) as well as mm (millimetres). We suggest retaining base units- mm, throughout.

2.4 Section 1.14 provides term definitions, "Must, Needs to…, Should and May". The draft is littered with undefined terminology and in some cases, that lack of definition will not improve compliance. We have attempted to identify all examples and undoubtedly have missed some.

3.0 Section 1

3.1 1.3 Scope

The 2nd paragraph reads:

"The aim of this ACOP is to ensure that bulk flammable liquids are securely contained and safely transported, thereby reducing the risks and helping to prevent accidental damage or injury to people, property and the environment."

3.2 We suggest amending this to incorporate handling also. Example- "The aim of this ACOP is to ensure that bulk flammable liquids are securely contained and safely transported **and handled**, thereby reducing the risks and helping to prevent accidental damage or injury to people, property and the environment."

3.3 The 6th paragraph reads:

"This ACOP does not detail the requirements of other legislation. Compliance with this ACOP does not obviate the requirement to comply with other sections of HSWA or regulations made under that Act, or other legislation such as the Heavy Motor Vehicle Regulations 1974, Land Transport Rule: Dangerous Goods 2005 (Rule 45001/1) and other Land Transport Rules applying to vehicles and drivers."

3.4 We suggest specifically referencing Land Transport Vehicle Dimensions and Mass rule (2005) also. Example- "This ACOP does not detail the requirements of other legislation. Compliance with this ACOP does not obviate the requirement to comply with other sections of HSWA or regulations made under that Act, or other legislation such as the Heavy Motor Vehicle Regulations 1974, Land Transport Rules: Dangerous Goods 2005 (Rule 45001/1), **Vehicle Dimensions and Mass** and other Land Transport Rules applying to vehicles and drivers."

3.5 The VDAM is referenced in section 1.8 and we see no harm in elevating its status to provide greater clarity and awareness. This becomes particularly relevant later in our response in Paragraph 4.16.

3.6 1.5 Audience

We support and welcome this addition to the code. It identifies and clarifies responsibility succinctly.

3.7 1.6 Definitions Section

Head

We note the question mark following the word "transverse". Existing clause 1.5.3 makes no mention of the orientation of the closure. We are unsure what benefit adding the term "transverse" adds. The important aspect should be it remains liquid tight. Orientation is irrelevant.

3.8 **Liquids with class 3.1 A, 3.1B, 3.1C or 3.1D hazard classification**

We believe the text that reads 930° should read 93°.

3.9 1.8 References.

We suggest adding a reference to NZ standard 5433 (Transport of Dangerous Goods on Land: Parts 1&2

4.0 Section 2

4.1 2.1 bullet point 4 states that:

"the means of securing the tank to the chassis, and in the case of tank trailers or tank semi-trailers the means of attaching the prime mover to the trailer or semi-trailer, are designed to withstand the design loads of the Regulations."

4.2 The definitions section makes no reference to a "trailer". "Tank trailer" is the term used. In the Definitions section, the prime mover is also defined explicitly as a vehicle that tows only "tank semi-trailers".

Provision must be made to incorporate the towing of tank trailers by a rigid vehicle.

4.3 We suggest amending the definition of "tank truck" to incorporate towing of "tank trailers" of class 3.1A, 3.1B, 3.1C or 3.1D hazard classifications also. The alternative is to consider how the term tank wagon could be utilised to ensure consistency across the ACOP in the respective vehicle type being referred at any particular time.

4.4 We are ambivalent on how that is achieved so long as greater clarity is provided.

4.5 2.3.1 Collision bumpers

This section is now titled "collision bumpers". That subtle change of title appears to anticipate changes to vehicle designs and encourages innovation rather than limiting design to legacy standard "bumper" styles. While that is the case that terminology fails to recognise international convention. The term "lateral protective device" reflects terminology contained in UN ECE Regulation 73. We suggest using this term and replacing terms proposed in the draft to match.

4.6 Section 2.5 provides the following Note which references the description of a B-Train: "For purpose of this requirement, an additional towed tank trailer, each additional B-Train[1] tank and similar combination is treated as being an individual vehicle and thus requires an additional complement of extinguishers."

4.7 Rather than reference "B Train" as part of a Note it seems sensible from a consistency perspective to do so in the definitions section under the "Tank Wagon" definition.

4.8 2.7.1 Mode of power

Given the current innovations with non-internal combustion motive technologies we do not see the relevance, value or effectiveness of continuing this requirement. A new requirement should be developed that encompasses the performance intent. We welcome the opportunity to assist with that.

4.9 Section 2.8 Tank trailer and tank semi-trailer requirements

This section could be significantly simplified if relevant codes, standards and rules/regulations were referenced. The target audience are manufacturers and road transport operators who are required to have a good grasp of those provisions.

4.10 For example, the first paragraph reads: "A relevant PCBU needs to make sure that a tank trailer of more than 2000 L capacity has two or more axles, which are not in-line transversely. Any trailer having fewer than two axles needs to be equipped with means of stabilising it when detached from the towing vehicle."

4.11 We suggest amending that to read:

"A relevant PCBU needs to make sure that a tank trailer of more than 2000 L capacity has two or more axles and designed to comply with relevant Land Transport Rules."

4.12 The fourth paragraph reads:

"Brake equipment is to comply with all Land Transport New Zealand requirements. As a minimum, it needs to be at least a dual system of airline brakes, which under all conditions of use will immediately and automatically operate to stop and hold the trailer should it become disconnected from the vehicle to which it is attached."

4.13 We suggest amending this passage as the majority of its contents are unnecessary for the target audience. Brake convention is set by Land Transport Rule: Heavy Vehicle Brakes 2006. The amended clause could

read ""Brake equipment is to comply with all Land Transport New Zealand requirements."

4.14 Paragraph five reads: "The driver should not be provided with the means of altering the intrinsic brake system balance."

4.15 We suggest replacing the term "should for "must" to read; "The driver must not be provided with the means of altering the intrinsic brake system balance."

4.16 2.10 Stability of tank wagons

A new section is added to this clause that is inconsistent with other referencing practice within the ACOP. High speed transient off tracking references international standards. Static roll threshold does not. By default, SRT requirements prescribed in the VDAM rule incorporate international standards. Compliance with SRT ensures compliance with those international standards.

4.17 Compliance with VDAM dimensional parameters ensures the international stability requirements stipulated in clause 2.10 are met.

4.18 Referencing international standards separately in this section introduces an element of confusion to the document reader. Rather than replicating and duplicating the government's vehicle safety regulator's provisions we suggest referencing compliance with the VDAM dimensional parameters as well as SRT requirements.

4.19 Those dimensions are checked by approved inspectors when vehicles enter service to confirm compliance.

4.20 2.13 Drive away protection.

We are unsure of the purpose of this clause. It states "A PCBU with management or control of a tank wagon must ensure that whenever a

transfer to or from the tank wagon is being undertaken, the vehicle is immobilised."

4.21 The level of immobilisation is not stated. Clarity is required. Intuitively, and taking into account the last paragraph of this clause that references the use of wheel chocks we can only assume the purpose is to ensure the vehicle remains braked and immovable throughout all phases of product transfer regardless of whether the engine and other systems are running.

4.22 If this clause is addressing brake interlock the more relevant exercise, aside from ensuring vehicles are adequately equipped with those systems, is having the assurance brake interlock systems are designed, function and interact with other systems on vehicles similarly.

4.23 An industry best practice in the form of a set of guidelines would provide that. We are willing to develop that for approval.

4.24 Vehicle roll over

We welcome this addition also as it reflects current manufacturer practice. This clause does need to be drafted to ensure future advancements in technology are not thwarted and to more readily enable their use.

5.0 Section 3

5.1 3.4.4 Normal venting

There are a number of diverse and disparate views on tank venting. Industry preference at this point is to reference Australian Standard 2809-2. Regardless, more time may be required to address this. Industry members will continue to discuss this important issue and expect to advance comments to Worksafe in a timely manner.

5.2 The draft states "The normal venting provision consists of a free vent, a pressure vent and a vacuum vent, generally in accordance with the following requirements:
a. The free venting provisions **shall** be either a……"

5.3 The term "shall" is not a defined term in the code. Suggest using a defined term regardless of whether this passage is amended or not.

5.4 Clause 3.5.5.1: Pipes passing through the tank shell **shall** be minimised.

5.5 The term "shall" is not a defined term in the code. Suggest using a defined term that reflects the desired outcome.

5.6 Clause 3.6.4 Pump-driving engines
A spark-ignition **engine is not be used** for pumping.

5.7 This passage seems to be missing a word. We also suggest further defining of the term "spark ignition engine". Conceivably, learned practitioners will associate a spark ignition engine with power plants reliant on high current secondary electric ignition systems. However, there may be those that do not and that improved clarity will be beneficial.

6.0 Section 4
Clause 4.1 recommends repaired tank wagons undergo a pre-commissioning inspection prior to returning to service. That reflects current practice but fails to identify the specifics of the pre-commissioning inspection. We have developed an industry practice to ensure repairs are recommissioned correctly. Referencing that would ensure consistency and provide the assurance all relevant checks are made.

6.1 The pre-commissioning checklist is attached to this submission.

6.2 Clause 4.2. The term "may" is used throughout passages contained in 4.2. "May" is defined as a **"**Permissible practice or approach, not mandatory to comply with HSWA or this code."

6.3 It reads: Tank wagons that are gas-freed **may** be serviced at any location or in any building, subject only to Section 4.1 above.
Tank wagons that are not gas-freed **may** be taken into a building for repairs or servicing, including maintenance, but not hot work, provided that:

- the tank is drained and valves closed or sealed
- no hot work is undertaken on the tank wagon
- the room is to be well vented to the outside of the building
- there is no source of ignition within 8 m (electrical wiring and fittings to be in accordance with requirements for use in hazardous areas or disconnected)
- the building is fire-resistant or there is a sprinkler system installed.

Tank wagons **may** be serviced outside a building provided that:

- the tank is drained and valves closed or sealed
- no hot work is undertaken on the tank wagon
- there is no source of ignition within 8 m (electrical wiring and fittings to be in accordance with requirements for use in hazardous areas or disconnected).

6.4 The use of the term "may" in these passages suggests the advice given can be ignored for an alternate and probably less safe practice. We suggest a re-word to ensure more safe and compliant practices are observed.

7.0 Section 5

Markings

The first paragraph of this section states "A PCBU with management or control of a tank must make sure the tank is marked on the rear and both sides."

7.1 "Must" and "make sure" are both defined terms that mean the same thing. We suggest rewording to remove the double reference. For example: "A PCBU with management or control of a tank must **ensure** the tank is marked on the rear and both sides."

7.2 Clause 5 (a). The design compliance certificate number issued by a compliance certifier (or the LAB number issued by the Department of Labour if the tank was constructed prior to 1st April 2004), and……."

7.3 This clause is redundant and its use is circular. 1.4 of the CoP sets its limits clearly and any tank constructed before this is covered by the existing code.

7.4 After 5 (h) it is stated the plate must be "affixed in a place readily accessible for inspection, preferably on the true left hand side near the front of the tank." The true left hand side is not defined and is open to interpretation. Undoubtedly learned practitioners will be aware of where those plates must be positioned. However, the code is not entirely explicit and a wording change may assist clarifying that.

7.5 **Commissioning certificate**

Currently the commissioning certificate is a paper document. The in-service certificate is a plate attached to the tank. Traceability and verification of compliance could be simplified if the commissioning certificate information is duplicated and placed an indelibly marked plate attached to the tank.

8.0 APPENDIX A

Means of compliance with this ACOP

The following **<u>are the actions are to be undertaken</u>** by a PCBU with management or control of a tank wagon or their agent to comply with this ACOP.

8.1 The section above in bold and underlined seems incomplete. Also, the terminology does not use defined terms. We suggest rewording to state "The following actions **<u>must</u>** be undertaken by a PCBU with management or control of a tank wagon or their agent to comply with this ACOP."

8.2 "Design" point (a) states. "Two copies of the general assembly drawing of the tank wagon for which approval is sought INCLUDING, where appropriate, the anticipated prime mover to be used. This drawing should show all major dimensions."

8.3 As mentioned earlier the prime mover is not the only powered unit to tow a tank wagon trailer. Rigid towing vehicles should also be referenced in this passage.

8.4 The last sentence of this clause uses the term "should". We believe those dimensions **must** be recorded and checked against VDAM requirements.

8.5 **Design**

The design of any new tank wagon or the assessment of any existing vehicle which is undergoing major modification, for use under this ACOP **is to** be carried out by a competent person with relevant experience in the road transport industry.

8.6 We suggest replacing the undefined term "is to" with "must"

8.7 After point (h) it is stated "Once the compliance certificate for the design is issued, a copy of this compliance certificate and the design information (including the drawings) is to be forwarded to WorkSafe who will issue a record number in the form "TAN XXX". If this design is to be used for other vehicles that have tanks 2000 L or larger, these **shall** be designated by separate numbers. We suggest replacing "shall" with a defined term.

8.8 **Inspection**

Every six months

This clause prescribes: "Present the vehicle to a vehicle testing station for a certificate of fitness inspection."

8.9 2014 amendments to Land Transport Rule: Vehicle Standards Compliance have created an environment enabling CoF inspection periods to be shortened or extended. Some trucks are now eligible to be operated for 12 months without having to be inspected. Conversely worse performing transport operators are required to have vehicles inspected more regularly (in some cases three monthly).

8.10 The advice to have vehicles inspected six monthly is out of step with Land Transport prescription. We suggest amending this passage to read that vehicles must be inspected at periods set by the land transport regulator.

8.11 The title "Every six months" cannot remain and we suggest replacing with "periodic inspection as specified by the land transport regulator"

8.12 **Every two years**

An in-service compliance certificate issued by a compliance certifier approved by WorkSafe is to be obtained for all tank wagons other than those with a tank capacity of less than 2000 L that contain a class 3.1D substance. The following items **are to be** included in the check:

8.13 We suggest replacing 'are to be" with must.

8.14 Test method for tank that is found to be leaking. Following (b) is the following passage "Tanks failing the above tests may be suitably repaired, and the above described tests **e** continued until no leaks are discovered before any tank is put in-service."

8.15 Suggest removing typo.

9.0 Appendix B

Clause 19 states. The vehicle **should** not be parked within 8 m of a **public place**.

9.1 Public place is a defined term in the Health and Safety at Work (Hazardous Substances) regulations. We are unsure whether "public place" in the ACOP means the same thing. If so it may be useful to add a reference to the regulations as a clarification. Should is an undefined term and we suggest replacing that term for a defined one.

9.2 20. Trailer tanks designed to carry hazardous substances with 3.1A, 3.1B or 3.1C hazard classifications **needs** to have tandem axles with braking on at least the first axle.

21. Single axle tank trailers **are to have** a means of stabilising when detached from the towing vehicle.

22. Tanks used to convey substances with 3.1A, 3.1B or 3.1C flammable classifications **need** to:

9.3 Replace undefined term "need" and "are to have" with "must" to provide greater clarity

10.0 Appendix D

10.1 **Pressure test**

The tank and fittings **<u>are to be</u>** capable of withstanding a pressure of 150% of a minimum of the pressure reached during venting or 500 kPa without leakage.

10.2 Are to be is an undefined term. Suggest replacement.

10.3 **Leak test**

The tank **<u>is to be</u>** filled, with feed outlet sealed, and rotated about any axis without any leakage. Suggest replacing undefined term with "shall"

11.0 Appendix E

Operation

The vehicle **<u>need</u>** to:

Add an "s" to the end of need to read "needs"

11.1 After 3.6 the term "true left side" is used. Previous comments in 7.4 cover our thinking on this.

12.0 APPENDIX F

12.1 **Tanks fitted to utility vehicles**

Bullet point 3 states. "The tank is to be fixed to tray of the utility vehicle such that under foreseeable operating conditions the tank will remain attached."

It is often under unforeseen conditions that catastrophes occur. Load restraint and safety are agnostic to the vehicle type or load being carried. Tanks fixed to trays of utility vehicles should be expected to withstand the same forces as heavy vehicles.

CONCLUSION

The draft modernises the existing ACOP. Technological, operational and procedural improvements should be embraced as they will improve compliance and safety.

One purpose of the PITSF and FDISC groups is to create a focal point for industry to interact with agencies and officials. The invitation to submit of the Draft ACOP signifies a significant positive step change in the dynamic between industry and regulators. That is good and should be further encouraged.

That has enabled us to venture forward the prospect of incorporating the pre-commissioning guide into the ACOP. It also elicits essential discussion on the development of guidance for the design, fitment and operation of brake interlock devices.

Proposed clause 3.4.4- venting is a contentious issue. We have recommended referencing Australian standard 2809-2 to address this. Industry would prefer additional time to agree and seek approval of adequate and safe venting protocols.

We have also suggested fitting vehicles with indelibly marked commissioning plates to simplify compliance verification to improve compliance verification.

There is a large degree of regulatory overlap between Land Transport and Health and Safety provisions. Land transport regulation substantially dictates operational and design characteristics of tankwagons. Improved referencing of land transport regulations will assist bringing those boundaries closer together to benefit compliance.

We welcome the opportunity to discuss further any of these topics or the contents of our submission.

Petroleum Industry
Transport Safety Forum

TANKWAGON / TRAILER PRESERVICE COMMISSIONING CHECKLIST

1. PURPOSE

The purpose of this checklist is for the NZ Oil Industry to have assurance of the integrity of a 'Ground Fuels' Tank-wagon or trailer before it is returned to service following a Degas or any completed work that is associated with equipment (below centreline) that could result in loss of product containment.

2. SCOPE

this checklist is mandatory to be completed for all 'Ground Fuels' Tank-wagons (excludes Aviation) loading at NZ Oil Industry Terminals for the following work;

- All repairs on Tank-wagon barrel
- Tank internal shut off valve (Foot valve)
- External Shut off valve (Inlet /Outlet Faucet Valve)
- Tank faucet to compartment Pipework
- Associated fitting for the above (eg sight glass, sample points)
- Any other work (including Degas) that is associated with equipment that could result in loss of product containment

A full visual external inspection shall be completed ensuring that all Hatches pipework, Hose Tray and Locker Boxes are in place and secure.

A Visual Internal Inspection of every Product Compartment shall be completed ensuring that all Compartments are free of engineering waste. The Inspection must be completed from the Tank top without entering any Compartment.

A further visual inspection must be performed by customer at terminal gantry when unit is returned to service (all terminal operating conditions must be followed)

3. PROCEDURE		**Tick Box**
3.1	With the Master valve open and the Foot Valves closed, Bottom load each Compartment with approx. 1000ltrs of water. *(note this will increase the test pressure to the Run-off tube to simulate gantry unloading).*Leave for 15 minutes. Label Control Panel "water on board" NOTE – Do not fill Dummy Compartment	
3.2	To ensure Internal Foot Valve is sealing, close the internal foot and drain the Run-off Tube. Check the Run-off Tube and Faucet Sightglass is empty. (If Compartment Internal Valve is not sealing carryout the necessary repairs.	
3.3	Open the Internal Foot Valve from the underside of the Tank. Check all Pipework, Flanges, Gaskets and Faucets for leaks. If leaks are found, carryout repairs as required and repeat step 3.5	
3.4	Drain off water	
3.5	Check internal of Compartments are free of water	
3.6	Check security of Overfill Probes	
3.7	Check Overfill Probes are set to the correct Height NOTE – If Documentation is not available, carryout Overfill Probe Setting Procedure	
3.8	Test Overfill System with Tester to check System is working	
3.9	Ensure Emergency Hatch is closed and sealed	
3.10	Ensure Fill and Dip Caps are closed and sealed	
3.11	Check Dip Stick security	
3.12	Check Manway Neck Band and Gasket are sealed	
3.13	Check Tank top Airlines and Fitting	
3.14	Ensure Tank top Drain Valves are clear	
3.15	Ensure Valance Plugs are installed	
3.16	Ensure Vapour Recovery Pipework is free of water Ensure Vapour Recovery Pipework is free of engineering waste	
3.17	Install Dust Cap to Vapour Recovery Outlet	
3.18	Ensure Hose and fittings are installed and secure Ensure Spill Kit is installed and secure Ensure Fire Extinguishers are installed and secure	
3.19	Ensure Hose Trays and Sumps are free of water and foreign matter	
3.20	Remove Lock out Tags, water on Board Signage	

4.0	**Cleared for return** (***A copy of this completed checklist must accompany the unit when returned to customer)***
	Fleet #: _____ **Service Company:** _____ **Rego:** _____ **Date:** _____ **Inspected By:** _____