New Zealand Timber Preservation Council
P O Box 308
WELLINGTON

Code of Practice for the

Management of Existing Stationary Container Systems at Timber Treatment Facilities

Approved Code of Practice
Under the Hazardous Substances and New Organisms (HSNO) Act 1996

Code Reference: **HSNOCOP 25-1**
Date of Approval: **22 February 2008**

Preface

This Code of Practice (No.HSNOCOP 25-1) is approved pursuant to Sections 78 and 79 of the Hazardous Substances and New Organisms Act. The Environmental Risk Management Authority has delegated the power to approve codes of practice to the Chief Executive of the Authority, and this Code of Practice is approved in accordance with that delegation. It is confirmed that the requirements of Sections 78 and 79 have been met.

Approval of the code is limited to those matters in the document that relate to legislative requirements under the HSNO Act and its regulations.

This code has been developed by the New Zealand Timber Preservation Council and sets out means of compliance with the requirements of Schedule 8 of the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004, and regulations 39 and 40 of the Hazardous Substances (Emergency Management) Regulations 2001, in accordance with clause 100(2)(c) of Schedule 8 and clauses 3(1)(b) and 4(4)(d) of Schedule 9 to the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004 (as amended)[1] (the Transfer Notice).

This Code applies to stationary container systems, used to contain hazardous liquids, that were in use at the commencement date of the relevant transfer notice for the hazardous liquid, or which had been designed and construction had commenced by that date.

The publication date in the Gazette for the Notice of Approval of this Code of Practice is 28 February 2008.

Pursuant to Section 80 (1) (a) of the Act, a copy of the code may be inspected at the Wellington office of ERMA New Zealand.

Pursuant to Section 80 (1) (b) of the Act, a copy of the code is available to download from the ERMA New Zealand website (www.ermanz.govt.nz).

Approved this 22nd day of February 2008.

Rob Forlong
Chief executive

[1] Including the amendments up to and including 30th June 2006.

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Management of Existing Stationary Container Systems at Timber Treatment Facilities

1. INTRODUCTION

The purpose of this Approved Code of Practice (Code) is to set out acceptable controls for existing stationary container systems at timber treatment facilities. The controls include associated secondary containment systems. An existing stationary container system is one that was in use for the containment of hazardous liquids **as at the commencement date of the relevant transfer notice**. For hazardous liquids that were transferred in the Hazardous Substances (Timber Preservatives, Antisapstains, and Antifouling Paints) Transfer Notice 2004 (as amended), they must have been in use **before the 1st of April 2004.**

The Environmental Risk Management Authority has developed and approved this Code as a means of compliance with the requirements of Schedule 8 of the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004, and regulations 39 and 40 of the Hazardous Substances (Emergency Management) Regulations 2001, in accordance with clause 100(2)(c) of Schedule 8 and clauses 3(1)(b) and 4(4)(d) of Schedule 9 to the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004 (as amended)[2] (the Transfer Notice). This code is not intended to encompass any other requirements of the Hazardous Substances and New Organisms Act 1996, nor any other legislative requirements (e.g. the Resource Management Act, Health and Safety in Employment Act etc), which are also required to be complied with.

This Code provides standards against which stationary container system test certificates can be issued.

Users of this Code are advised that Regional and District Councils may have requirements that are in addition to this Code.

[2] Including the amendments up to and including 30th June 2006.

Existing stationary container systems may be managed and certified (where necessary) without the need to submit an application for a compliance plan to the Authority if they comply with this Code. Where a test certifier determines that a stationary container system satisfies this Code, a stationary container system test certificate may be issued.

Reference should also be made to the New Zealand Timber Preservation Council Publication – Best Practice Guideline for the Safe Use of Timber Preservatives and Antisapstain Chemicals.

1.1. Scope

Improper management of hazardous substances may cause injury, death, ill health, or lead to damage to the environment. Bulk hazardous liquids must be securely contained if the risks are to be avoided.

This Code applies to substances that are:

1. Water borne preservatives that are used within the New Zealand timber treatment industry and are categorised as copper chrome arsenate (CCA), alkaline copper quaternary (ACQ), copper azole (CuAz) and boron compounds. They do not have a flammable hazard classification.
2. The ACQ, CCA and CuAz preservatives are used in timber treatment vessels at a maximum of 6% concentration in water.
3. The boron compound preservatives are used in timber treatment vessels at a maximum of 20% concentration in water.

This Code applies to stationary container systems which:

- include a stationary tank or process container with a capacity not less than 450 litres and not exceeding 110,000 litres, and
- (a) do not fully meet the requirements of Schedule 8 of the Transfer Notice 2004 (as amended), and/or
  (b) do not fully meet the requirements of regulations 39 or 40 of the Hazardous Substances (Emergency Management) Regulations 2001[3], and
- (a) were being used to contain a hazardous liquid that requires the controls for stationary container systems as set out in Schedule 8 of the Transfer Notice to apply and were in use immediately before the commencement date of the relevant transfer notice, or
  (b) were designed to be used to contain a hazardous liquid that requires the controls for stationary container systems as set out on Schedule 8 of the Transfer Notice to apply, and construction of the stationary container system to that design had commenced before the commencement date of the relevant transfer notice, and

[3] Refer Schedule 9 clause 4 (4) (d) of the Transfer Notice

- are situated at facilities which are undertaking the treatment of timber.

  This Code is also applicable to stationary container systems that may have multiple stationary tanks or process containers provided that no individual stationary tank exceeds 110,000 litres.

The stationary container systems covered by this Code include:

1) Above ground stationary tanks (fixed bulk containers) designed in accordance with AS1692 "Steel Tanks for Flammable and Combustible Liquids".

2) Above ground stationary tanks (fixed bulk containers) for the storage of hazardous liquids with Class 6 (toxic) or Class 8 (corrosives) classification, designed, constructed and installed in accordance with the Toxic Substances Regulations 1983 and/or a standard approved by the Ministry of Health (refer Appendix 3 of the Code of Practice for the Management of Existing Stationary Container Systems up to 60,000 litres).

3) Above ground stationary tanks which are of an indeterminate design but where it can be reasonably demonstrated by a competent person[4] that the construction and installation of the stationary tank meets the requirements of The Toxic Substances Regulations 1983 and/or a standard approved by the Ministry of Health (refer Appendix 3 of the Code of Practice for the Management of Existing Stationary Container Systems up to 60,000 litres).

Note: installations which include stationary tanks that are not encompassed by the criteria listed above are to comply with the requirements of Schedule 8 of the Transfer Notice as well as regulations 39 or 40 of the Hazardous Substances (Emergency Management) Regulations 2001, or must have a compliance plan submitted in accordance with Schedule 8 clause 101 and/or Schedule 9 clause 5 of the Transfer Notice.

1.2. The HSNO Act and the Role of Codes of Practice

The HSNO regulations are largely performance based, that is, they specify a desired outcome without necessarily prescribing how to achieve it. They do not require that a single specific means be used to comply with any regulation and this allows for variations in the method used for compliance.

The HSNO Act provides for Codes of Practice to be issued or approved by the Authority to identify acceptable solutions to comply with the specified regulatory requirements. An

[4] In this context, a competent person means an engineer familiar with the design, construction or repair of stationary tanks or the tank manufacturer.

Approved Code of Practice provides users with a method of implementing the control requirements with a degree of prescription and assistance.

In addition, specific provisions of the HSNO regulations and Gazetted Transfer Notices permit Codes of Practice to be approved by the Authority as alternatives to other specified requirements provided they can be shown to provide an equivalent level of safe management.

1.3. Means of Compliance

This Code provides a means of compliance with the requirements of Schedule 8 of the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004, and regulations 39 and 40 of the Hazardous Substances (Emergency Management) Regulations 2001, in accordance with clause 100(2)(c) of Schedule 8 and clauses 3(1)(b) and 4(4)(d) of Schedule 9 to the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004 (as amended). Compliance with this Code eliminates the requirement to submit an application for compliance plans as referenced in Schedule 8 clause 101 and Schedule 9 clause 4 of the Transfer Notice.

1.4. References

Hazardous Substances and New Organisms Act 1996

Hazardous Substances (Emergency Management) Regulations 2001.

Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004 (as amended)

Dangerous Goods (Class 3 – Flammable Liquids) Regulations 1985

Toxic Substances Regulations 1983.

Code of Practice for the Management of Stationary Container Systems up to 60,000 litres capacity

Hazardous Substances (Timber Preservatives, Antisapstains, and Antifouling Paints) Transfer Notice 2004 (as amended)

1.5. Interpretations

Interpretations are as per Part 1 clause 2 of Schedule 8 of the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004, with the following additions:

Approving Authority means the Approving Authority prior to 1 April 2004, i.e. either:

1) the Chief Inspector of Explosives and Dangerous Goods, Department of Labour; or
2) the Director of Public Health (Manager Public Health Programmes), Ministry of Health; or,
3) as delegated by either of these parties e.g. territorial or regional authority; or
4) for the period 2 July 2001 to 1 April 2004, any of the above parties as delegated by the Environmental Risk Management Authority of New Zealand.

Approved means a suitably appropriate, mandatory item of equipment that prior to 1 April 2004, was required to be either;

1) approved by the Chief Inspector of Dangerous Goods, Department of Labour in accordance with the Dangerous Goods Act 1974 and Regulations; or
2) approved by the Director of Public Health, Ministry of Health in accordance with the Toxic Substances Act 1979 and Regulations; or
3) for the period 2 July 2001 to 1 April 2004, any of the above parties as delegated by the Environmental Risk Management Authority of New Zealand.

Capacity means the full water capacity of the stationary tank, including the ullage space e.g. for a horizontal tank this includes the full barrel capacity of the tank and for a vertical tank includes the volume up to the roof to shell joint. Where an overflow is fitted below these levels, the volume is to the invert level of the overflow.

Existing Stationary Container System means a stationary container system to which Schedule 8 of the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004 (as amended) applies that, immediately before 1 July 2004-

(a) was being used to contain a substance described in clause 1.1 of this code, or

(b) was designed to be used to contain a substance described in clause 1.1 of this code, and construction of the stationary container system to that design had commenced.

Fixed Bulk Containers means an above-ground stationary tank, as defined in Attachment 3, clause 17A (1), approved in accordance with the Toxic Substances Regulations 1983 for the storage of hazardous liquids with a Class 6 (toxic) or Class 8 (corrosives) classification.

Transfer Notice means the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004 including the amendments up to and including 30th June 2006.

1.6. Application of this Code of Practice

This Code may be used when the Transfer Notice cannot be directly applied e.g. when the standard to which the stationary container system was constructed is not referenced in the Transfer Notice. In these circumstances it is an alternative means of compliance. For some stationary container systems it may be appropriate to apply one or more elements of this Code.

If a requirement is specified in Schedule 8 but is not included in this Code, compliance with the requirement of Schedule 8 is required. In particular, Part 19 Test Certification is required to be complied with. Table 1.5 is provided as a guide:

Table 1.5 Relevant clauses of Schedule 8 of the Transfer Notice

Clauses of Schedule 8 of the Transfer Notice for which alternatives or practical applications are offered in this code
5-6
8(2)
20,23,29,30,31
32-34
81(3)

Situations will arise where the detail of some elements of the existing stationary container system is not available (e.g. the specification that the stationary tank was constructed to, or an element of the specification that cannot be verified such as a component of a below ground tank). I t is intended by the use of this Code that such circumstances can be accepted and recorded provided that the stationary container system was approved under the previous legislation. This does not however imply automatic acceptance of a facility that does not meet accepted engineering principles and practices.

1.7. Timber Treatment Facility

In the context of this Code, a timber treatment facility is a plant that includes:

- stationary tanks for storage of the concentrated treatment substance, and
- process vessels where the diluted treatment substance is transferred to/from the pressure/vacuum vessel, and
- pressure/vacuum vessel (process vessel) where the treatment of the timber takes place

2. REQUIREMENTS FOR EXISTING STATIONARY CONTAINER SYSTEMS

2.1. Accepted Engineering Principles and Practice to be Applied[5]

The question as to whether a stationary container system complies with this Code is to be determined having regard to the need to comply with this Code in a way that is—

1) practicable; and
2) consistent with accepted engineering principles and practice.

2.2. General Performance Requirements for Stationary Container Systems[6]

1) Subject to subclause 2.2 (2)(a) below, all parts of a stationary container system must be designed, constructed, installed, operated, maintained, inspected, tested, and repaired so that the stationary container system contains any hazardous substance that is put into it without leakage of that hazardous substance (including any diluent or desensitising agent), when subjected to all likely—
   i) operating temperatures; and
   ii) pressures; and
   iii) stresses and loadings (including seismic and wind stresses and loadings); and

2) All parts of a stationary container system that are likely to come into contact with a hazardous substance must be designed, constructed, installed, operated, maintained, inspected, tested, and repaired so that, when the stationary container system contains a hazardous substance—
   (a) it is able to contain the hazardous substance—
   i) if the stationary container system is designed for use in specific environmental conditions or a specific temperature range, or both, in those environmental conditions, or that temperature range, or both; or
   ii) if a hazardous substance to be contained in the stationary container system is subject to requirements relating to environmental conditions or the temperature range in which it must be contained, or both, in those environmental conditions, or that temperature range, or both; or
   iii) in any other case, in the temperature range minus 10ºC to plus 50ºC; and

   (b) any materials used in the construction, maintenance, or repair of the stationary container system do not react with the hazardous substance in or on the stationary container system, or interact to significantly affect or weaken the stationary container system so that the requirements of this Schedule cannot be complied with.

[5] This is a reproduction of Schedule 8, clause 5 of the Transfer Notice
[6] This is a reproduction of Schedule 8, clause 6 of the Transfer Notice

2.3. Stationary Tanks up to 60,000 litre Capacity

Stationary tanks that have a capacity up to 60,000 litres may be managed in accordance with the Code of Practice for the Management of Existing Stationary Container Systems up to 60,000 litres capacity

2.4. Open top stationary tank or process container

Where the stationary tank or process container is an open top container, there must be a stiffening ring about the top of the tank.

2.5. Design and Construction

1) Every above-ground stationary tank or process container must be so designed as not to be subject to any unsafe pressure as a result of filling or withdrawing its contents, or of any temperature change.
2) An effective means for determining the contents of every above-ground stationary tank or process container must be provided in respect of every such stationary tank (e.g. by dipstick, gauge or sight glass). If sight glasses are used, there must be isolation valves mounted close to the stationary tank.
3) The means of determining the capacity of an above-ground stationary tank or process container must be calibrated to the individual stationary tank or process container for which it applies.
4) The maximum safe fill must be clearly marked.

2.6. Stop valves

1) A valve that can be used to cut off the flow of hazardous liquids must be installed, as close as practical to the stationary tank or process container, in every pipeline that is used for conveying hazardous liquids to or from any above-ground stationary tank or process container and which terminates at or in the stationary tank or process container below the level of any hazardous substances that may be stored in it.

2) The termination of every pipe at used for the transfer of hazardous liquids into or from an above-ground stationary tank or process container must have a stop valve fitted as close as practicable to the transfer point.

2.7. Pipework

Pipework must be in sound condition and free from leaks. If constructed from stainless steel, carbon steel or fibreglass it shall generally be in accordance with ASME B31.3. If constructed from PVC pipe it shall be constructed and installed in accordance with AS/NZS 1477:2006 PVC pipes and fittings for pressure applications and Installation of PVC pipe systems.

2.8. Separation Between Above Ground Stationary Tanks

The separation distance between above ground stationary tanks must enable access for inspection and maintenance. The minimum acceptable distance is 150mm.

2.9. Timetable

Where items are non-compliant these must be rectified in accordance with the following table. Where there is more than one plant item in any line item that is not compliant and the time frame is greater than 2 years, it is not sufficient to simply comply with all items by the final end date that is nominated – each item must be timetabled such that there is an even progress to resolution by the final end date for example, if a facility has 7 stationary tanks or process containers, it will be necessary to undertake an out of service inspection of one tank every year.

All stated time periods commence as at 1 Jan 2008.

2.10. Verification Process

The process of verification against this Code is to include:

- A verification of the stationary tanks and process vessels in accordance with Appendix A
- A verification of the pressure/vacuum vessel in accordance with Appendix B

2.11. Rotationally Moulded Tanks

A rotationally moulded polyethylene stationary tank is permitted provided that:

- The maximum size of the tank is not greater than 25,000 litres, and
- The circumferential creep[7] is no greater than 2.5%, and
- Where a tank used to store a hazardous liquid with an SG greater than 1.0, there must be evidence that the tank was manufactured to contain substances with a specific gravity which meets or exceeds the specific gravity of the substance contained, and
- The substance stored has been determined as being compatible with the material of construction of the tank, and
- The service life[8] of the tank has not been exceeded.

[7] Circumferential Creep is the ratio between the initial circumference and the current measured circumference as a percentage. On an existing tank the circumferential measurement shall made at a height of 300 mm to 400 mm from the base of the tank when the tank is full. This is to be compared with a measurement made at a height 25-75 mm from the base of the tank.

[8] In the absence of definitive information, the service life of a rotationally moulded tank is to be 10 years.

2.12. Tanks/Process Containers with Timber Staves and Liner

Tanks constructed of timber staves with a liner inside must

- have a daily visual inspection. This inspection must ensure that the staves are correctly positioned and that there is no evidence of leakage.
- have a bi-annual inspection of the cables and grips. This inspection must ensure they are correctly tensioned and free from corrosion.

Table 1 Timeframe

Item	Non compliance	Action required	Timeframe
1	Tank design standard unknown (steel, stainless steel, concrete)	Determine at next tank out of service inspection	7 years, or 10 years from the last documented out of service inspection (whichever is earlier)
	Tank standard not HSNO approved (timber staves)	Remove from service	5 years
2	Tank seismic design unknown (steel, stainless steel, concrete)	Determine for implementation at next tank out of service inspection. Upgrade if necessary to at least the standard applicable when the tank was installed	7 years, or 10 years from the last documented out of service inspection (whichever is earlier)
3	Vent capacity unknown	To be calculated.	1 year
4	Vent capacity inadequate	Fixed within 1 year or at next tank out of service inspection. Procedures to be in place to ensure vent restriction is not exceeded and the reduced fill/empty rates are sign posted on the tank	5 years
5	No manufacturers plates	Install when design confirmed at next tank out of service inspection	5 years
6	None or inadequate pipeline marking	Install marking	2 year
7	Maintenance records	Maintenance programme to be commenced and records kept	1 year
8	Pipework standard unknown	Determine compliance and review whether upgrade required	2 years
9	No records available	Create records and then include information as the tank is inspected.	1 year
10	Secondary containment crest locus	Review and install splash shields if appropriate	5 years
11	Secondary containment capacity	Increase to a minimum of 110%	10 years
12	Secondary containment integrity unknown	Verify integrity of total bunded area through a technical inspection at 5 yearly intervals	2 years
		Verify integrity of “wet” areas by monitoring the contained liquid	5 years
14	Primary containment system does not contain the hazardous substance	Review design and implement solution	5 years
15	Tank/process container secondary containment system not segregated i.e. working area also tank/ process container secondary containment system.	Implement solution	Major plant works
16	Intertank separation for substances that do not have a flammable classification	Implement solution	Major plant works
17	Pressure/vacuum vessel	Determine at next out of service inspection	1 year

Appendix A: Verification of Stationary Tanks and Process Vessels.

Item Reference	Plant Item	Inspection Type	Criteria
1	Carbon Steel or Stainless Steel Stationary Tank or Process Vessel greater than 60,000 litres capacity with flat bottom.	Ultrasonic or equivalent	Wall thickness not less than that specified in AS1692. Three readings to be taken on shell; immediately above minimum fill, mid fill level and immediately below maximum fill, Two readings to be taken on roof Three readings to be taken on floor
		Visual[9]	General condition fit for purpose Weld joints free of defects No corrosion affecting integrity No corrosion of structural members No leakage[10] Flange connections tight with no buckling Overflow functioning[11] Level gauges intact and operational (both tank side gauges and control system gauges) Vents correctly sized and operational[12]
	Supports	Verification	Seismic and wind
		Visual	General condition fit for purpose Weld joints free of defects No corrosion affecting integrity No corrosion of structural members

[9] The tank external surface is not expected to be free of paint for this inspection.
[10] Fill stationary tank or process vessel to maximum possible level (above safe fill level), leave for a minimum of 6 hours, check for leakage.
[11] Process vessels only
[12] Closed Stationary tanks only

Item Reference	Plant Item	Inspection Type	Criteria
	Level controls	Physical	All alarms and shutdown mechanisms, if fitted, are operating correctly
	Stationary tank and process vessel foundation	Visual	No settlement or structural deterioration.
8	Plastic (PVC) pipework	Visual	Pipe/fittings marked to AS/NZS 1477 Installation generally in accordance with AS/NZS 2032 Free from leaks under operational conditions
	Steel pipework	Visual	Installation generally in accordance with ANSI B31.3 Free from leaks under operational conditions

Appendix B Pressure Vacuum Vessel

Assessment of pressure/vacuum vessel that does not exceed 95,000 litre capacity (Reference item 18).

The following items will be inspected and assessed.

	Good	Average	Poor
▪ Door mechanism operational.			
▪ Door condition sound.			
▪ Door seal intact and sealing.			
▪ Interlock valve system functional.			
▪ Internal shell condition sound.			
▪ External shell condition sound			
▪ Condition of welds internal			
▪ Condition of welds external			
▪ Flange and pipe nozzle connections.			
▪ Vessel supports			
▪ Check rails, guides and pulleys.			
▪ Pumps and pipe connections.			
▪ Lubrication			
▪ Guarding in place			
▪ Signage (operating systems and H&S)			
▪ Safety valve set pressure			
▪ Design pressure does not exceed 1700 kPa.			
▪ Pressure test observed without stress or leaks.[13]			
▪ Compliance with clauses 7.2.1.4 and 7.2.1.5 of the Best Practice Guideline for the Safe Use of Timber Preservative and Antispastain Chemicals			
▪ Item 1- Date of commissioning			
▪ Item 2- Vessel volume			
▪ Item 3- Vessel design pressure			
▪ Item 4- Operating temperature			
▪ Item 5- Vessel fully flooded during operation			
▪ Item 6- Chemical concentration			
▪ Vessel certification/design numbers (if any).	**No:**		

[13] Fill pressure/vacuum vessel to maximum possible level and leave for a minimum of 2 hours at test pressure, check for leakage.

Notes:

To avoid any subjective assessments being made, the following criteria apply to the judgment of Good, Average and Poor;

GOOD- No obvious signs of distress, significant corrosion < 0.5 mm deep, maintenance and lubrication in evidence and all systems functioning as per manufacturers recommendations.

AVERAGE- Some poor weld profiles and weld quality as assessed to AS 4037 for an AS 1210-3 vessel construction. Evidence of isolated corrosion deeper than 0.5-1.0 mm or general surface corrosion or coating failure.

POOR- Weld quality and profiles that would not comply with AS 4037 for an AS 1210-3 vessel construction, significant corrosion > 1mm deep. No evidence of maintenance being carried out.

Any items that are poor condition must be remedied. If they are not remedied, or cannot be remedied, a stationary container test certificate cannot be issued.

Pressure Vacuum Vessel that exceeds 95,000 litre capacity.

Pressure vacuum vessels that have a capacity exceeding 95,000 litres must have a certificate in accordance with the requirements of the Health and Safety in Employment (Pressure Equipment, Cranes and Passenger Ropeways) Regulations.