

Environmental Compliance Report
Wood Preservation Industry

Part A

Compliance Audit



ENVIRONMENT PROTECTION AUTHORITY

This *Environmental Compliance Report: Wood Preservation Industry—Part A Compliance Audit* was prepared by the Compliance Audit Section, NSW Environment Protection Authority.

For technical information on the matters discussed in this paper, contact the EPA Compliance Audit Section on (02) 9995 5000.

Published by:
Environment Protection Authority
59–61 Goulburn Street Sydney
PO Box A290
Sydney South 1232
Phone: (02) 9995 5000 (switchboard)
Phone: 131 555 (NSW only—information & publications requests)
Fax: (02) 9995 5999
TTY: (02) 9211 4723
Email: info@epa.nsw.gov.au
Website: www.epa.nsw.gov.au

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EXECUTIVE SUMMARY

The Wood Preservation Industry sector has been chosen to pilot a new 'comprehensive' approach to environmental compliance activities. The approach will build on and integrate the Environment Protection Authority's (EPA) current formal compliance audits and licence reviews. A key focus, in addition to assessing compliance with existing requirements, will be on improving industry's environmental performance, with reference to best practice. Industry, licensees, State agencies, local government, the community and other stakeholders will be able to provide input into various stages of the process.

This report, *Environmental Compliance Report: Wood Preservation Industry—Part A Compliance Audit* is a summary of the findings of the audit phase of the pilot, looking at compliance with current EPA regulatory requirements. The second report, 'Part B Review of Best Practice and Regulation', summarises the regulation and best environmental management practices of the Wood Preservation Industry, and global trends and issues facing the industry and regulators. Parts A and B are being issued concurrently.

The EPA conducted compliance audits on five wood preservation facilities out of eleven licensed to primarily conduct wood preservation activities in NSW. It is likely that issues identified in this report are generally typical of the whole industry sector.

The objectives of the audits were:

- to assess each enterprise's compliance with the statutory instruments issued to the premises and with the licensing requirements of the *Protection of the Environment (Operations) Act 1997*
- to outline a program of follow-up actions needed to address any non-compliances and improve environmental performance.

This report is based on a collation of these audit findings. It provides an insight into this industry sector's overall compliance performance and a summary of other issues of environmental concern identified through further observations during audits.

The procedures and protocols for conducting each audit are described in the EPA Compliance Audit Handbook. Assessment of compliance at each premises was undertaken by a detailed site inspection and a review of records and documentation. Officers of the EPA carried out the audits between August and October 2002.

Based on the audits, there are opportunities for the industry to improve its compliance and environmental performance by:

- providing adequate controls to prevent dust and air emissions from occurring on the site
- providing adequate maintenance of drains, dams and areas within the treatment facility to prevent sediment and chemical contaminants being carried off-site
- providing adequate storage facilities for materials and wastes to prevent spills from escaping to the soil and waters
- correctly tracking wastes generated on the site
- monitoring discharges and keeping all required details on the monitoring records
- supplying annual returns to the EPA within the required time, recording details of complaints and complying with licensed production capacities
- developing emergency response plans.

All the audited premises were privately owned and operated.

Some factors that influence the current level of compliance in the industry sector are the age of the treatment facilities and difficulty in retrofitting certain environmental controls.

The EPA considers that 'Part A Compliance Audit' and 'Part B Review of Best Practice and Regulation' are valuable management tools for the industry to improve environmental performance.

In addition to a systematic and rigorous process of follow-up action programs to ensure that issues identified are being addressed at the audited sites, the EPA will shortly be reviewing all wood preservation licences. The public is encouraged to make submissions to the EPA regarding those reviews.

INTRODUCTION

Comprehensive approach to environmental compliance

The EPA is piloting a new 'comprehensive' approach to environmental compliance with the Wood Preservation Industry. The approach is designed to build on and better integrate the EPA's formal compliance audits and licence reviews. A key focus, in addition to assessing compliance with existing requirements, is on improving industry's environmental performance, with reference to industry best practice. To achieve this, the EPA will carry out significant consultation with the industry, community, licensees, other State agencies, local government and other interested parties during the various stages of the process.

As the first phase of the pilot, the EPA has conducted compliance audits of a sample of the licensed wood preservation facilities across NSW. The EPA has also conducted a literature review of the best environmental management practices used by the Wood Preservation Industry, and trends affecting the industry worldwide.

The EPA is reporting the results of the pilot as an *Environmental Compliance Report: Wood Preservation Industry*. 'Part A Compliance Audit' is a summary of the findings of the audit phase of the pilot. 'Part B Review of Best Practice and Regulation' summarises the regulation and best environmental management practices of the wood preservation industry, and global trends and issues facing the industry and regulators. Parts A and B of this report are being issued concurrently.

The EPA will conduct a review of all wood preservation licences, as required under section 78 of the *Protection of the Environment (Operations) Act 1997* (POEO Act). The review will involve reassessing the environmental protection issues and the licensing decisions made regarding each site, and varying licences where necessary. It is expected that these reviews will be completed by August 2003. The licences to be reviewed will be advertised, and listed on the EPA website www.epa.nsw.gov.au/licensing/review.htm. Details of licence variations will be made available through the EPA's Public Register on www.epa.nsw.gov.au/prpoeo/index.htm

Selection of industry sector

The EPA regularly deals with all licensed activities. In addition, the EPA conducts more intensive compliance audits on industry sectors. Sectors targeted in the EPA's Environmental Compliance Program are chosen on the basis of an assessment of major community and environmental concerns, and EPA corporate objectives and strategies.

Individual premises in an industry sector are selected for audit to gain a representative sample of the sector. The EPA selected five of the eleven licensed premises that primarily conduct wood preservation activities for audit.

Purpose of this report

This report, 'Part A Compliance Audit', presents the key findings of the compliance audits carried out on a representative sample of premises in the wood preservation industry. The audits were undertaken on premises across NSW that are licensed by the EPA under the POEO Act.

This report has been prepared for the purpose described and no responsibility is accepted for its use in any other context or for any other purpose.

It is expected that both parts A and B will be used to improve the environmental performance of the sector and of individual premises within it.

Audit methodology

EPA compliance audits were performed on the selected premises in accordance with the procedures and protocols in the *EPA Compliance Audit Handbook* (available from the EPA's Pollution Line—phone 131 555). The audits were limited to a review of each enterprise's compliance with legislation administered by, and statutory instruments issued by, the EPA.

When an audit is completed, the findings are presented to the enterprise as an individual compliance audit report. These reports were based on information from EPA files, information supplied by representatives of the enterprise and observations made during site inspections, which were carried out between August and October 2002. Each report contains a plan of action, with recommendations on what must be done by the enterprise to comply within an agreed time period. These recommendations relate to any non-compliances and other areas where enterprises can improve their environmental performance.

EPA staff follow-up on compliance audits to ensure that the enterprise is implementing the required actions. The EPA has a systematic and rigorous monitoring and tracking program to ensure that the licensee completes all required actions.

Individual compliance audit reports are publicly available in the EPA Library on Level 15, 59–61 Goulburn Street, Sydney. The findings presented in this report, 'Part A Compliance Audit', are a collation of the findings presented in the individual compliance audit reports.

Description of Wood Preservation Industry

The Wood Preservation Industry treats timber and wood products with chemical preservatives to protect the wood from degradation (due to various organisms including fungi, insects and borers) and therefore to extend the range of applications and the service life of the wood. By design, the chemicals used to protect wood must be toxic to the target organisms, but they may also affect non-target organisms and the environment.

Types of preservatives

The following groups of preservatives are currently registered for wood preservation in NSW:

- copper chrome arsenate (CCA)
- copper-based alternatives to CCA
- boron
- creosote
- pyrethroid- and metal-based light organic solvent preservatives (LOSPs).

CCA

CCA consists of three metals: copper, chromium and arsenic. All three metals pose a risk to the environment. Both hexavalent chromium and arsenic are known to have carcinogenic effects in humans.

CCA concentrate is diluted with water to create a working solution that is used in pressure treatment. CCA-treated timber is commonly identified by a greenish hue, but this is also common with the other copper-based preservatives. CCA-treated timber is registered under the *Timber Marketing Act 1977* for NSW use in all hazard level applications; varying from internal use to ground, freshwater and marine contact.

Four of the five premises audited used CCA and collectively used approximately 440,000 litres per year of CCA concentrate.

Copper-based alternatives to CCA

The copper-based alternatives to CCA, ammoniacal copper quaternary (ACQ) and copper azole, are diluted with water to create the working solution. ACQ is registered to treat timber for use in all hazard levels except marine immersion, and copper azole for all hazard levels except fresh water and marine immersion.

Boron

Boron-based preservatives are colourless and odourless. Boron is only registered to treat timber for internal, above-ground applications completely protected from the weather.

Two of the five premises audited used boron and collectively used approximately 1240 litres per year.

Creosote

Creosote contains about 300 different compounds, including polycyclic aromatic hydrocarbons (PAHs), some of which have known carcinogenic effects. Creosote is generally used to treat timber used in industrial applications such as railway sleepers, poles, bridges, and marinas. Creosote is applied to timber both under pressure, when it is diluted with distillate, and by surface application.

Creosote was not used at any of the five premises audited.

LOSPs

LOSPs are used to treat timber for above-ground applications. They contain active ingredients which include tri-butyl-tin (TBT) and permethrin, which are diluted with a light organic solvent, such as white spirits, to produce a working solution for pressure treatment.

Two of the five premises audited used LOSPs: permethrin in white spirit (fungicide only), and permethrin/TBT naphthenate (fungicide and pesticide) in white spirit. These premises used approximately 1,148,400 litres of LOSPs working solution per year.

Preservation processes

There are two methods of treating timber and wood products: non-pressure and pressure.

Non-pressure methods

Non-pressure methods involve the application of preservative by brushing, spraying or dipping the piece to be treated. These are superficial treatments that do not result in deep penetration or large absorption of preservative. Their use is usually restricted to field treatment during construction (for example, when a pressure-treated piece of timber must be field cut), or the remedial treatment of wood in situ.

The non-pressure method is used in one of the five premises audited, where the ends of untreated poles are sprayed with preservatives.

Pressure methods

Improved preservation may be achieved by driving the preservative into the wood cells with pressure. Various combinations of pressure and vacuum are used to force adequate levels of preservative into the wood.

All five premises audited used a pressure treatment process.

Treatment processes may vary depending on:

- a) the preservative used
- b) the species of timber
- c) whether the timber has been pre-seasoned
- d) the treated timber's intended use.

The timber typically treated at the audited premises is plantation Radiata Pine or a mixture of native hardwoods including Blackbutt, Spotted Gum and Brushbox.

Pressure treatment process

Generally a pressure treatment process would be as follows. Preservative concentrate is delivered by bulk tanker, drums or containers and is pumped into concentrate tanks. The concentrate is then diluted and stored as working solution.

Following the loading of timber into the pressure vessel on trolleys, the door is closed, the door seal pumped up and the interlocks engaged. The preservative solution is flooded into the vessel under vacuum at ambient temperature and once the vessel is fully flooded, the vacuum pump is turned off and isolated while the pressure pump continues to force preservative solution into the vessel. The pressure is maintained until the timber will no longer absorb the preservative and has reached the point of refusal.

At this point the preservative solution is pumped back to the storage tank and a final vacuum applied to draw out the excess preservative. At the end of the final vacuum period any remaining preservative solution in the vessel is pumped back to the storage tank for reuse.

The treated timber is removed from the vessel and stored on a drip pad, which is generally concreted and bunded. Once the treated timber is either dry, or the preservative has become 'fixed', it is moved to a yard for storage or for final despatch.

Hazardous sludge waste may be generated in treatment vessels and hazardous contaminated material wastes may be generated due to spills, leaks or drips of preservatives. All five audited premises dispose of contaminated waste to landfill facilities. The premises audited collectively generate approximately 22,000 kg/year of wastes and sludge that are contaminated with a chemical treatment preservative.

Wood preservation is often carried out at premises undertaking timber milling, but timber is not generally milled following preservation. Two of the five audited premises conduct milling. One site mills timber before CCA-treatment only. The other site conducts milling before and after the boron treatment process and only a very limited amount of milling of CCA-treated timber. The CCA-treated timber offcuts are in the form of stepping stones which are used by the local council. Treated timber waste is not generally burnt, but the EPA observed at one audited premises that boron-treated sawdust is disposed of off-site in a wood fired boiler. The limited quantities of CCA-treated sawdust are also disposed of in the same manner. Untreated offcuts are also burnt on this site in a burning pit.

Refer also to 'Part B Review of Best Practice and Regulation' for the environmental management practices that may be undertaken at wood preservation sites to prevent or mitigate the risk of harm that wood preservation activities pose to the environment.

Regulation of the industry

Premises that meet the following criteria where wood preservation activities are undertaken must be licensed under Schedule 1 of the POEO Act.

'Wood preservation works being works that treat or preserve timber using chemical substances (containing copper, chromium, arsenic, creosote or any substance classified in the Australian Dangerous Goods Code) and that have an intended processing capacity of more than 10, 000 cubic metres of timber per year.'

The EPA has issued eleven environment protection licences, under the POEO Act, to premises where the scheduled activity is wood preservation.

The EPA has also issued licences to a further two premises for other scheduled activities but where wood preservation is also carried out. One of the audited premises was also licensed to undertake wood or timber milling.

Conditions are attached to Environment Protection Licences specifying the manner in which the licensed activity(s) must be undertaken. One of the audited premises was also required to conduct a contamination

assessment report as part of a Pollution Reduction Program placed on the licence by the EPA to identify the nature and extent of any contamination of groundwater by copper, chromium or arsenic, both on the premises and off-site.

The scope of the five audits undertaken was limited to compliance with the environment protection licences and the licensing requirements of the POEO Act. Other environmental legislation that may affect wood preservation premises are further described in Part B—Review of Best Practice and Regulation.

The scales of operation of the premises audited are listed in Table 1.

Table 1: Scales of operation of premises audited

Scale of facility	No. of premises audited
0–10 000m ³ produced	0
> 10 000–30 000m ³ produced	4
> 30 000m ³ produced	1

EPA Regions are shown in Figure 1. Details of the number of wood preservation facilities licensed in each EPA region and the number of audits carried out in each region as at September 2002 are shown in Table 2.

Figure 1: EPA Regions

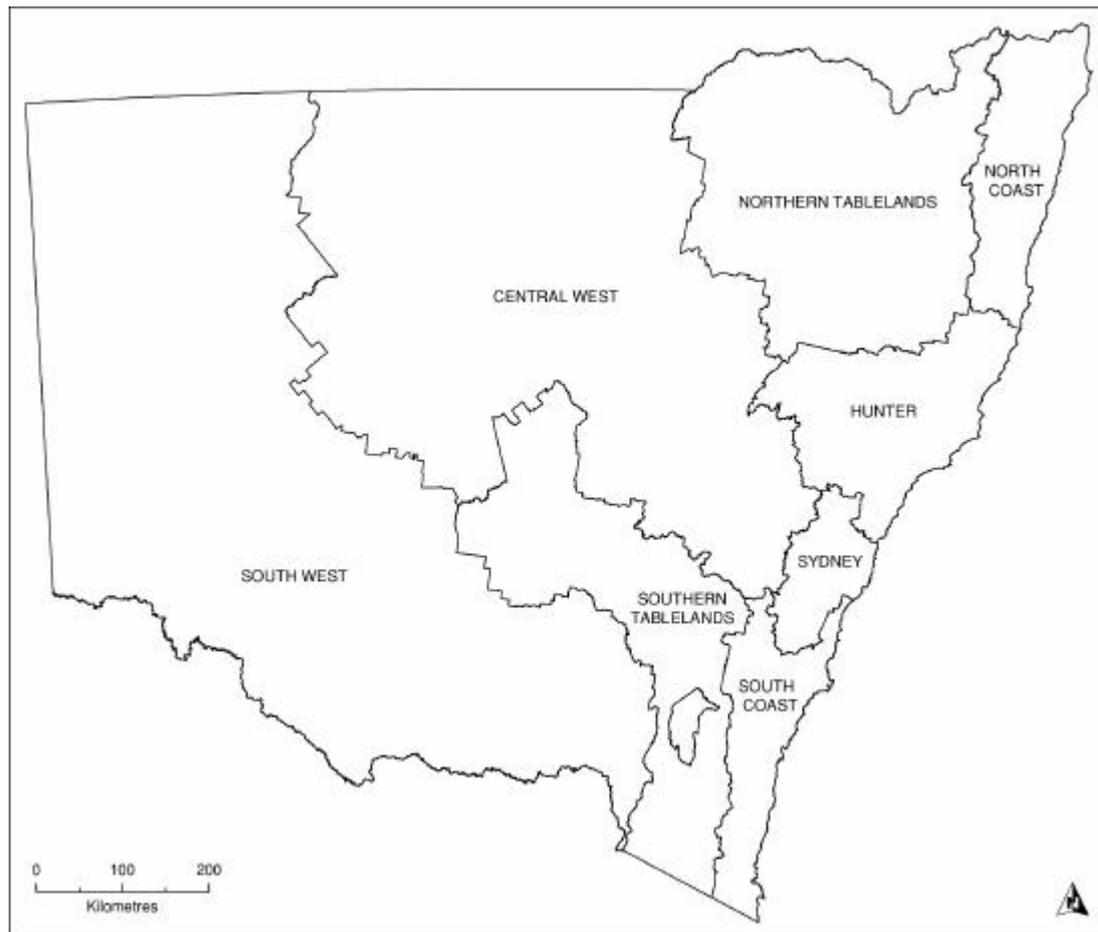


Table 2: Numbers of premises licensed as timber preservation facilities and audited in each EPA region

EPA Region	No. of premises licensed	No. of premises audited
Hunter	1	1
North Coast	4	1
Central West	3	1
Southern Tablelands	1	1
South West	2	1
Total	11	5

Refer also to 'Part B Review of Best Practice and Regulation' for further information regarding the regulatory framework in which the Wood Preservation Industry operates.

SUMMARY OF FINDINGS OF COMPLIANCE AUDITS

The compliance of each premises listed in Appendix A with the conditions attached to the statutory instruments held and with the licensing requirements of the POEO Act, is described in the individual compliance audit reports. This section of the report summarises the areas identified from the non-compliances and further observations reported in the individual compliance audit reports.

Non-compliances are reported where there is clear evidence of a breach of licence conditions. The EPA is carrying out a systematic and rigorous process of follow-up actions to ensure that licensees of audited sites address all reported non-compliances. Follow-up actions required for audited sites can be found in the individual audit reports, available in the EPA Library.

Where an issue of environmental concern is observed that does not strictly relate to the scope of the audit or assessment of compliance, the issue is reported as a further observation. Further observations are indicators of potential non-compliances or areas where environmental performance may be improved. In this section of this report, issues that were identified through further observations as opposed to non-compliances can be identified by the word ‘potential’ which appears in the description of the issues. The areas of concern and observations identified during the audits are presented in Table 3.

The EPA identified the following practices that contributed to good environmental management at the sites audited:

- fully roofed drip pads and treatment facilities
- sealed access roads
- enclosures around sawdust stockpiles
- high level indicators on tanks
- waste bins fitted with lids and stored on concrete pads
- reuse of excess preservative.

Table 3: Findings identified in the audits, and the number of premises at which those findings were identified

Issue	Findings	No. of premises at which finding was identified (out of the 5 premises audited)
Preventing air pollution		
	Inadequate dust controls on access roads	2
	Inadequate dust controls on stockpiles	1
Preventing water pollution		
	Failure to maintain drains, dams or treatment facility	4
	Inadequate surface water controls	4
	Inadequate storage of materials and wastes	5
	Pollution of surface waters	3
Preventing groundwater pollution		
	Pollution of groundwater	3

Issue	Findings	No. of premises at which finding was identified (out of the 5 premises audited)
Preventing soil contamination		
	Soil contamination	3
Tracking of waste		
	Not classifying wastes in accordance with the environmental guideline	1
	Not making a written application for a consignment authorisation number	2
	Incomplete consignment information on waste data forms	1
	Not determining controlled wastes within the meaning of the NEPM	1
	Not ensuring if the waste transporter was licensed to transport the waste	1
	Not completing a waste transporter certificate	1
	Not submitting a nil report	1
	Not retaining all information related to a consignment	1
Monitoring		
	Failure to carry out the required monitoring of surface water	2
	Failure to record the times at which samples were taken and the name of the person who took the samples	2
Accountability		
	Failure to supply an annual return within the correct time frame	1
	Failure to notify the public of the complaints line telephone number	1
	Failure to record all details in complaints register	1
	Exceeding the scale of production capacity specified on the licence	1
Management plans		
	Failure to develop an emergency response plan	1
	Incorrect details on environmental management plans	2

Preventing air pollution

Air pollution arising from wood preservation facilities can include:

- odours or vapours from treatment vessels
- dust from roads or stockpiles
- gas emissions from boilers or burning of timber off cuts that can be harmful to human health and the environment.

Issues relating to air pollution or the potential for air pollution were identified at two of the five audited premises.

Without adequate controls, odours may be detectable on site by workers or on adjoining properties, potentially impacting on the health and amenity of the local community.

Dust controls

Issues relating to dust controls were identified at two of the five premises audited.

- Inadequate dust controls on an unsealed internal access road used by forklifts to transport timber products around the site with the potential for dust to be emitted from the premises were identified (2 of the 5 premises).
- Inadequate windshields were identified around stockpiles of sawdust, chipper and mulch generated from saw milling operations with the potential for dust emissions during adverse wind conditions (1 of the 5 premises).

All operators should identify activities, plant and equipment that have the potential to cause air pollution. Operational procedures and process controls that minimise air emissions from the site should be developed and implemented. The effectiveness of these controls should be monitored on an ongoing basis. Dust controls should:

- minimise pollutants leaving the site as airborne dust
- reduce sediment pollutant load
- protect local amenity.

Preventing water pollution

Surface water and groundwater are fundamentally interconnected and it is often difficult to separate the two because they 'feed' each other. Groundwater in a broad sense, is all water that occurs below the land surface and largely occurs in aquifers sufficiently permeable to allow water to infiltrate, move through and leave. Filtered down from the surface, groundwater may seep slowly for numerous kilometres and many years, eventually emerging naturally to rivers, springs and marshes. Surface water and groundwater may gather pollutants from a wide variety of sources and therefore may contain a variety of contaminants. Water contaminated with pollutants from land can reach surface and coastal waters via runoff from rain. These waters can also be polluted by recharge from contaminated groundwater. Contaminated water can also infiltrate land to an extent where the land itself requires some form of remediation.

The groundwater and surface water at wood preservation facilities can be contaminated by CCA or other timber treatment preservatives if drips from treated timber are not adequately contained on drip pads or if CCA or other preservatives are spilt during delivery or during the timber treatment process. Other sources of contamination may occur if:

- the preservative is not stored within a facility that is suitable to contain spillages
- the preservative has not been adequately fixed in the timber prior to storage in yard areas
- there is inadequate storage of waste oil or of CCA-contaminated sludge generated by the treatment process
- there are spillages of petrol or diesel from fuel pumps.

Surface water runoff from timber preservation facilities can cause unacceptable levels of copper, chromium and arsenic or other chemical preservatives to enter water bodies or contaminate sedimentation dams which may result in uncontrolled discharges to water bodies. Water pollutants such as sediments from unsealed areas of the site are also likely to become entrained in surface waters and there is potential for spillages of chemicals and wastes on unsealed areas to percolate through the soil and contaminate groundwater.

Under Section 120 of the POEO Act 1997 it is an offence to pollute waters. Pollution of waters means introducing (whether through an act or omission) into waters any matter whether solid, liquid or gaseous that changes the physical, chemical or biological condition of the waters. Additionally, under section 120 it is also an offence to place material in a position where it is likely to fall, descend, be washed, be blown or percolate into any waters or the dry bed of any waters or into any drain, channel or gutter used or designed to receive or pass rainwater, floodwater or any water that is not polluted. Waters include the whole or any part of a stream, river, lake, wetland, natural or artificial water course, dam or tidal waters and underground water.

Issues relating to water pollution and potential water pollution were identified at all five of the audited premises.

Surface water management

Maintenance of surface water plant and equipment

Issues relating to maintenance of surface water plant and equipment were identified at four of the five premises audited.

- The capacity of the sedimentation dam to hold contaminated water was compromised due to inadequate diversion of uncontaminated water including roof water and upgradient stormwater away from the dam. Sediment collected in the dam had not been removed since commissioning and the retention time within the dam needed to be increased. Additional capacity was required in the form of a second larger sedimentation dam below the existing dam (1 of the 5 premises).
- The retention time and capacity of the sedimentation dam was not being utilised due to a leak in a pipe within the dam resulting in the potential for inadequate removal of suspended solids prior to its discharge to waters (1 of the 5 premises).
- A stormwater drain was blocked with rubble and debris, and fabric silt fences erected to reduce sediment discharges from the premises had deteriorated and were not being operated effectively, with the potential to cause pollution of waters (1 of the 5 premises).
- The bund wall surrounding the drip pad or chemical delivery areas had deteriorated, with the potential to cause pollution of waters (2 of the 5 premises).

All operators must ensure that all plant and equipment used to control surface water are maintained in a proper and efficient condition to prevent pollution of waters. Operational procedures and process controls should be developed and implemented to minimise the volume of runoff generated at the premises and to prevent contaminated runoff from discharging to waters. Any contaminated water that is to be discharged from the site must be treated prior to discharge, to prevent pollution of waters. The effectiveness of controls should be monitored on an ongoing basis.

Surface water controls

Issues relating to likely and potential surface water or groundwater discharges were identified at four of the five premises audited.

- Monitoring results for surface water in the pond which collects stormwater runoff from the yard area indicated the presence of copper, chromium and arsenic (1 of the 5 premises).
- Elevated levels of arsenic and chromium were detected in samples taken adjacent to the outlet of the drain on the drip pad which separates roofwater from drip pad drainage, having the potential to pollute waters (1 of the 5 premises).
- Elevated levels of arsenic, chromium and boron were detected in samples of water from areas of the site that were likely to be discharged and likely to cause pollution of waters (1 of the 5 premises).
- Wastewater potentially contaminated with oil and grease or suspended solids from washing down vehicles was not adequately treated prior to discharge into sedimentation dams or watercourses with the potential to cause pollution of waters (2 of the 5 premises).
- Elevated levels of arsenic and chromium were detected in both surface water and sediment in the sedimentation dam, with the potential to cause pollution of waters (1 of the 5 premises).
- An analysis of condensate leaking from the kiln indicated high levels of copper. The condensate runoff was not contained and had the potential to cause pollution of waters (1 of the 5 premises).
- Uncontaminated stormwater was not directed away from the woodchip stockpiles causing generation of leachate that was potentially contaminated with tannin. The leachate could be discharged from the site, with the potential to pollute waters (1 of the 5 premises).

All operators should ensure that controls are in place to segregate clean stormwater from potentially contaminated stormwater and investigate any potential sources of contamination of surface water in ponds, soil or groundwater to ensure that any discharges do not pollute waters. These sources include:

- cross contamination which may occur between the treatment plant site and the yard area
- seepage from the treatment plant facility, chemical preservative storage areas or drip pad
- overflows from sumps or tanks
- inadequate fixation of preservative chemicals in treated timber prior to it being stored in unsealed yard areas.

The effectiveness of controls should be monitored on an ongoing basis.

Storage of materials and wastes

Any leaks and spills of solid or liquid materials that are not properly handled or not stored in appropriate isolated areas have the potential to either drain or be flushed to waters causing water pollution, or to sedimentation dams compromising their effectiveness.

Materials and wastes were not being stored in a manner that would contain spills and leaks, with the potential for water pollution all five premises audited.

- Drums containing waste oil or chemicals were being stored in unbunded areas, with the potential to pollute waters (3 of the 5 premises).
- The capacity of bunds was reduced due to excessive stormwater in the bunds surrounding the diesel storage tank (1 of the 5 premises).
- There was evidence of diesel spills around the diesel bowser without a containment system, with the potential to pollute waters (1 of the 5 premises).
- There was damaged bunding around chemical storage tanks, with the potential to pollute waters (2 of the 5 premises).

All operators should identify any material storage activities that may impact on the quality of water flowing from the premises or draining to the sedimentation dams on-site and ensure that controls are in place, such as storing chemicals in contained areas with impervious bunds. Such bunded areas should be regularly maintained to prevent pollution.

Pollution of surface water

The pollution of surface water was occurring at three of the five premises audited.

- Elevated levels of suspended solids were detected in stormwater runoff which was discharging from the premises, causing pollution of waters (1 of the 5 premises).
- Uncontaminated stormwater was not being diverted away from the sawdust pile resulting in tannin leaching from the pile into the sedimentation dam, which was discharging off-site causing pollution of waters (1 of the 5 premises).
- Elevated levels of suspended solids were detected in the drain from the sedimentation dam which was discharging off-site causing pollution of waters (1 of the 5 premises).
- Monitoring results indicated that total suspended solids exceeded licence limits on the day of the audit, causing pollution of waters (1 of the 5 premises).

All operators should identify sources of suspended solids entering sedimentation dams and drains and must ensure that controls are in place to minimise sediment from entering dams and drains and discharging off-site. Sediment controls should be maintained and monitored to ensure that they are effective. If monitoring indicates that the controls are not effective, operators need to take action quickly to stop any pollution, remediate the area and prevent pollution from occurring in the future.

Preventing groundwater pollution

Groundwater controls

Issues were identified in relation to groundwater controls at three of the five premises audited.

- Monitoring results for groundwater indicated likely pollution of groundwater (1 of the 5 premises).
- Activities conducted at the site over many years may have resulted in groundwater contamination (1 of the 5 premises).
- There was a lack of maintenance of concrete flooring in the process facility with the potential to contaminate groundwater in the event of a spill (1 of the 5 premises).

All operators should identify any existing or emerging groundwater issues and ensure that controls are in place to minimise the potential for groundwater contamination. These controls may include establishing groundwater monitoring programs with monitoring points/bores located above and below all potential discharge locations. Operators need to adequately monitor the effectiveness of their controls.

Preventing soil contamination

Soil contamination controls

Issues in relation to soil contamination were identified at three of the five premises audited.

- Delivery vehicles, loaders or forklifts which were not dedicated solely to the drip pad were traversing the pad creating the potential to track contaminants including CCA and boron from the drip pad into the yard areas (2 of the 5 premises).
- Soil in the treated timber storage area which could be contaminated with preservative chemicals, had the potential to contaminate waters (1 of the 5 premises).

- A site assessment indicated some soil contamination from chemical preservatives used at the site (1 of the 5 premises).

Operators must ensure that controls are in place to prevent soil contamination. These controls may include:

- the use of dedicated forklifts
- regular vacuum-sweeping or decontamination of facilities to prevent tracking of contaminants from the drip pad to other areas of the site
- the use of CCA fixation tests on treated timber
- high level sump alarms and tank cut-offs.

The effectiveness of controls should be monitored on an ongoing basis.

Tracking of waste

Under the POEO Act, waste tracking requirements apply throughout NSW to the consignment, transportation and acceptance for storage, treatment or disposal of certain types of hazardous, industrial or Group A wastes. Such wastes are subject to special monitoring and reporting requirements according to either an Environment Protection Licence or the Protection of the Environment Operations (Waste) Regulation 1996. Different requirements apply if certain 'controlled' wastes are transported between NSW and other States or Territories.

Tracking of waste monitors its movement by industry and provides the EPA with information of any irregularities that occur. It also involves the provision of regular summary reports to the EPA by industry for planning and governmental reporting purposes. The movement of those wastes which pose a potential significant threat to the environment and public health must be tracked by industry to ensure that:

- wastes reach appropriate destinations that are licensed to receive them
- illegal disposal of wastes is identified so that action can be taken
- responses to incidents involving the spillage of wastes are improved
- waste management is monitored to identify weaknesses so further initiatives can be developed to improve practices
- intrastate and interstate transport of controlled wastes occur consistently.

Issues relating to tracking of waste were identified at two of the five premises audited.

- Wastes were not classified correctly (1 of the 5 premises).
- There was no written application for a consignment authorisation number (2 of the 5 premises).
- There was incomplete information on waste data forms (1 of the 5 premises).
- Operators had not determined whether waste was a controlled waste under the National Environment Protection Measure (NEPM) (1 of the 5 premises).
- Operators did not ensure that the waste transporter was licensed to transport the waste (1 of the 5 premises).
- A waste transport certificate was not completed (1 of the 5 premises).
- A 'nil' report to the EPA advising that waste had not been transported from the premises during a reporting period was not submitted (1 of the 5 premises).
- All information related to a consignment was not retained (1 of the 5 premises).

Operators should ensure that all waste tracking requirements are complied with to maintain the integrity of the system. Controlled waste tracking is based on a system of notification protocols for industry and the

verification of information supplied by other parties involved in waste movements. Operators of wood preservation plants should ensure that waste is accurately classified, and consignment numbers obtained prior to transport to pre-arranged destinations. For interstate transport, the consignment number must be obtained from the environment protection agency with coverage in the destination location. Operators should also pay particular attention to the waste tracking reporting requirements. This includes quarterly reporting of wastes transported from the premises and, where no waste has been transported within the specified quarter, submitting a 'nil' report to the EPA. These measures complete a closed loop ensuring that all parties involved in the transport of waste are aware that it has been safely transported and delivered to the correct destination.

Preventing hazards and loss of amenity

The potential amenity and hazard impacts from wood preservation activities include dust, odour, noise and site security.

The following issues relating to loss of amenity and hazards were identified.

Dust controls

Issues related to dust controls were identified at two of the five premises audited. See details under 'Preventing air pollution'.

Odour controls

No odours were emitted from chemical preservatives being used at any of the five premises audited.

Security

Security measures implemented to minimise the risk of illegal waste dumping and vandalism were adequate at all five premises audited.

Monitoring

Monitoring of air emissions or discharges to waters allows the operator to determine the nature of any pollution caused by activities at the premises and provides the basis for action required to rectify the problem. All monitoring undertaken by the occupier must be carried out at sufficient frequency to characterise the level of pollutants discharged from the premises.

Licence conditions requiring monitoring of water quality discharges applied to three of the five premises and the requirement to monitor air quality emissions applied to one of the five premises.

Monitoring requirements were not being complied with at three of the five premises audited.

Monitoring of surface water

Issues in relation to surface water monitoring requirements were identified at two of the five premises audited:

- not carrying out the required monitoring of surface water at the EPA licensed discharge point or not carrying out the monitoring at the required frequency.

Recording details of samples

Issues in relation to recording the details of samples were identified at two of the five premises audited:

- not recording the time at which samples were taken or the name of the person who took the samples.

Accurate monitoring of surface water and groundwater discharges and interpretation of results allows the operators and the EPA to assess the effectiveness of pollution control equipment and the effect on the environment of activities carried out at the site. Monitoring must be conducted as specified in an Environment Protection Licence. If there are no monitoring requirements on the licence, operators should determine the need for monitoring groundwater and water discharges so as to comply with section 120 (Prohibition of Pollution of Waters) of the POEO Act

The operator should keep accurate and detailed records of monitoring undertaken for quality assurance purposes and to ensure that the monitoring data can be interpreted and acted upon. Monitoring must be undertaken in accordance with the EPA's *Approved Methods for the Sampling and Analysis of Water Pollutants in New South Wales* to provide greater confidence that the results of the monitoring reflect the true nature and environmental impact of discharges. If methods are not specified in the Manual, monitoring must be undertaken in accordance with any methodology which a licence condition requires, or if there is no such requirement, any methodology approved by the EPA in writing.

Accountability

Issues in relation to accountability requirements were identified at four of the five premises audited.

- An annual return was not supplied within 60 days of the end of the reporting period (1 of the 5 premises).
- The public was not notified of the existence of a telephone number for a complaints line they could phone to make a complaint (1 of the 5 premises).
- The scale of production capacity specified on the licence was exceeded (1 of the 5 premises).
- Details of complaints were not recorded (1 of the 5 premises).

It is important that all information required by the EPA as a condition of a licence is provided within the required timeframe and contains all the data requested. The EPA uses this data to regulate the environmental impacts of the site. It is important that operators notify the community of the telephone number of the complaints line so that incidents can be promptly reported and actioned by the company. Complaints received can be valuable tools for monitoring the environmental impact of an activity on the local community.

Management plans

Issues in relation to management plans were identified at two of the five premises audited.

- An emergency response plan was not developed in accordance with the conditions of the licence (1 of the 5 premises).
- There were incorrect details on environmental management plans developed by the licensee for the operation of the premises (2 of the 5 premises).

Operators should consider developing environmental management plans that identify potential environmental impacts, including those arising from emergencies, and describe procedures and actions to prevent or mitigate those risks.

WHERE TO FROM HERE?

Environmental Compliance Report: Wood Preservation Industry—Part A Compliance Audit and Environmental Compliance Report: Wood Preservation Industry—Part B Review of Best Practice and Regulation identify matters for consideration by the NSW Wood Preservation Industry and other interested stakeholders.

The issues identified in this report, ‘Part A Compliance Audit’, are likely to be generally typical of the whole Wood Preservation Industry sector in NSW.

Based on the audits, the industry could improve its compliance and environmental performance by:

- providing adequate controls to prevent dust and air emissions from occurring on the site
- providing adequate maintenance of drains, dams and treatment facility operations to prevent sediment and chemical contaminants being carried off-site
- providing adequate storage facilities for materials and wastes to prevent spills from escaping to soil and waters
- undertaking requirements for the tracking of wastes generated on the site
- undertaking monitoring of discharges at the facility and keeping all required records of the monitoring
- supplying annual returns, recording detail of complaints, complying with licensed production capacities and developing emergency response plans.

While the EPA, through a systematic and rigorous process of follow up action programs, ensures that these particular issues are being addressed at the audited sites, they are likely to be of concern at any premises where wood preservation activities are being conducted and warrant an ongoing focus by site management at all premises.

The accompanying report, ‘Part B Review of Best Practice and Regulation’ summarises the regulation and best environmental management practices of the wood preservation industry, and global trends and issues facing the industry and regulators.

In addition to audit follow-up procedures outlined in Part A, the EPA will be reviewing all wood preservation licences, pursuant to section 78 of the POEO Act. The EPA will ensure that the matters identified in Part A are being considered at all licensed wood preservation premises.

The EPA recognises that reporting on the state of the wood preservation industry sector’s environmental performance, the best environmental management practices and industry trends will be a valuable management tool. The EPA will therefore circulate information in Parts A and B to relevant stakeholders and seek cooperative opportunities to work with the industry to improve its environmental performance.

Following the licence review phase of the pilot, the EPA will issue a final report which will identify the changes made and further guidance for the wood preservation industry.

APPENDIX A: LIST OF PREMISES AUDITED

The findings of this report are based on the results of compliance audits on the following premises:

Coffs Harbour Hardwoods Trading Pty Ltd
Tallowadjah Creek Road, Glenreagh
Licence No. 11413

Highland Pine Products Pty Ltd
Stewart Street, Bathurst
Licence No. 105

Koppers Timber Treatment Preservation Pty Ltd
Weakleys Drive, Beresfield
Licence No. 11246

Prime Pine Pty Ltd
Sandy Lane, Bombala
Licence No. 11205

Weyerhaeuser Australia Pty Ltd
Snowy Mountains Highway, Gilmore
Licence No. 1459

Individual compliance audit reports for all of these facilities are publicly available in the EPA library on Level 15, 59–61 Goulburn Street, Sydney.

APPENDIX B: REFERENCES

Australian/New Zealand Standard 2843.1 2000, *Timber preservation plant safety code. Part 1: Plant design.*

Australian/New Zealand Standard 2843.2 2000, *Timber preservation plant safety code. Part 2: Plant operation.*

Centre for Groundwater Studies July 2001, *Fundamentals of Groundwater Science, Technology and Management*, Vol. 1 Ed. 4.

Environment Protection Authority 1998, *Approved Methods for the Sampling and Analysis of water pollutants in New South Wales.*

Environment Protection Authority 1999, *Environmental Guidelines: Assessment, Classification & Management of Liquid & Non-liquid Wastes*, EPA 99/21.

Environment Protection Authority 2000, *New South Wales State of the Environment 2000: Water backgrounder*, EPA 2000/83.