

Environmental Compliance Report **Wood Preservation Industry**

Part C
Final Report



Department of
**Environment and
Conservation (NSW)**

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SUMMARY

The Wood Preservation Industry sector was chosen to pilot a new ‘comprehensive approach’ to environmental compliance activities. The approach builds on and integrates the compliance audit and licence review processes of the Department of Environment and Conservation (DEC). A key focus, in addition to assessing compliance with existing requirements, is the securing of improvements in industry environmental performance, with reference to industry best practice. Industry, licensees, State agencies, local government, the community and other stakeholders have an opportunity to provide input into various stages of the process.

In June 2003, the Environment Protection Authority (EPA), which is now part of the DEC, released a summary of compliance audits carried out with the Wood Preservation Industry, *Part A Compliance Audit* (‘Part A’), and a summary of the regulation and best environmental management practices of the industry, *Part B Review of Best Practice and Regulation* (‘Part B’). The EPA received 14 public submissions following the release of these reports, and all licences in the Wood Preservation Industry sector have now been reviewed, pursuant to section 78 of the *Protection of the Environment Operations Act 1997* (the ‘POEO Act’).

This report, *Environmental Compliance Report: Wood Preservation Industry—Part C Final Report* outlines changes to the regulation of the Wood Preservation Industry in NSW resulting from this comprehensive pilot program. In addition to prompting the consideration of changes to the POEO Act through legislative review, the licence reviews have resulted in changes to environment protection licences, to better align our regulation with best environmental management practices. Changes have included:

- prohibiting the burning of treated timber
- requiring copper chrome arsenate (CCA) fixation to occur while timber remains on sealed drip pad areas, and requiring fixation monitoring programs
- initiating pollution studies of surface and ground water
- requiring better management of wastes.

The DEC is also continuing to pursue ongoing issues regarding the Wood Preservation Industry, including pesticide registration, treated timber waste and possible enhancements of the industry code of practice, *AS/NZS 2843 Timber preservation plant safety code*.

An evaluation of this pilot program has shown that the ‘comprehensive approach’ is an effective tool for contributing to improved industry environmental performance.

INTRODUCTION

Comprehensive approach to environmental compliance

The Department of Environment and Conservation (DEC) has been piloting a new ‘comprehensive approach’ to environmental compliance activities, focusing on the Wood Preservation Industry. The approach is designed to build on and better integrate the DEC’s formal compliance audit and licence review processes. A key focus, in addition to the assessment of compliance with existing requirements, is the securing of improvements in industry environmental performance, with reference to industry best practice. To achieve this, significant consultation has been carried out with the industry, community, licensees, other State agencies, local government and other interested parties, during the various stages of the process.

This report is the final in a three-part series *Environmental Compliance Report—Wood Preservation Industry*, and describes the progress and findings of the pilot program. The first part, *Part A Compliance Audit* (‘Part A’), summarised the findings of compliance audits of licensed wood preservation facilities across NSW. The second part, *Part B Review of Best Practice and Regulation* (‘Part B’), summarised the regulation and best environmental management practices of the Wood Preservation Industry, and the global trends and issues facing the industry and regulators. Together, the reports benchmark industry performance, identify best practice and provide advice about action taken.

Following the release of Part A and Part B in June 2003 and advertising of the review of wood preservation licences, the EPA, which is now part of the DEC, received public submissions regarding the licences, the regulation of the industry in general, and the ‘comprehensive approach’.

Licence reviews of all wood preservation licences have now been undertaken, pursuant to section 78 of the *Protection of the Environment (Operations) Act 1997* (the ‘POEO Act’). The reviews involved reassessment of the environmental protection issues at each site and the licensing decisions made for individual sites, and the varying of licences where necessary.

Selection of industry sectors

Industry sectors targeted in the environmental compliance program are chosen on the basis of an assessment of major community and environmental concerns and corporate objectives and strategies.

Purpose of this report

This report, *Part C Final Report*, provides information on the progress of the environmental compliance program within the Wood Preservation Industry and of the changes made to regulation of the industry, both in general and at individual licensed premises in NSW.

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.

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 use 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 arsenic and hexavalent chromium are known to have carcinogenic effects in humans. CCA concentrate is diluted with water to create a working solution that is used in vacuum and 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 applications at all hazard levels, ranging from internal use to ground, fresh water and marine contact.

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. Copper azole is registered to treat timber for use at all hazard levels, except hardwood timber that is to be immersed in fresh water and timber for marine immersion. (Standards Australia expects to publish changes to AS1604 later in 2004 that will allow the use of copper azole to treat softwoods intended for fresh water immersion.) ACQ is registered to treat timber for use in applications at all hazard levels except marine immersion.

Boron

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

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 (as an emulsion or diluted with distillate) and by surface application.

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 (for example, white spirit) to produce a working solution for pressure application. A new bifenthrin-based preservative has recently been registered for use in the glue for plywood and various engineered wood products.

Preservation processes

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

Non-pressure methods

Non-pressure methods involve the application of preservative by brushing, spraying, dipping, or soaking the piece of timber to be treated. These treatments can achieve the required preservative penetration and

retention, but are 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. When such treatment is undertaken beyond the controls of wood preservation plants, the risk of diffuse pollution from the preservative is increased.

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 preservative into the wood to the appropriate level of penetration and retention.

Risk of harm to the environment

The preservative chemicals pose a risk of harm to the environment throughout the wood preservation process. The best environmental management practices, identified in Part B, should be employed by the Wood Preservation Industry to address such risks to the environment arising from:

- chemical transport, storage and use
- timber treatment processes
- waste storage and disposal
- treated timber storage.

ONGOING COMPLIANCE PERFORMANCE OF THE WOOD PRESERVATION INDUSTRY

Part A summarised the findings of compliance audits of five licensed wood preservation facilities. Follow-up by the DEC shows that the issues identified during the compliance audits have been addressed by the licensees, in the following ways.

Pollution studies

One licensee was required to conduct an investigation into sources of contamination of surface water. This has been undertaken, and a subsequent plan to implement the findings of that study has been prepared.

Plant improvements

Four licensees were required to repair or improve plant, such as bunds and drip pads, to ensure that these physical controls continued to protect the environment. These repairs have been undertaken.

Emergency planning

One licensee was required to upgrade the site emergency plan. This upgrade was carried out, ensuring that the licensee has an up-to-date plan designed to protect the environment from risks arising from an emergency.

Operating procedures

Two licensees were required to upgrade operating procedures to address non-compliance issues. These improvements have now been implemented.

Monitoring improvements

Three licensees were required to improve their monitoring protocols to ensure compliance with licence requirements. These improvements have now been implemented, improving the quality of environmental monitoring information available to licensees and the DEC.

Accountability matters

Three licensees were required to address systems for dealing with complaints or reporting. These matters have been addressed.

The environmental management issues that led to the above actions were also considered during the licence reviews undertaken on all licensed wood preservation premises, as discussed in more detail below.

PUBLIC SUBMISSIONS RECEIVED REGARDING THE WOOD PRESERVATION INDUSTRY

Following the release of Part A and Part B, 14 submissions were received regarding the review of environment protection licences for wood preservation. The submissions represented the views of regulators, industry and interested members of the public, and related to licensed sites and to wider issues regarding the Wood Preservation Industry.

Submissions about specific sites

One submission was received regarding regulation of a specific licensed site. The issues raised regarding management of the risks to surface water quality have been considered as part of the review of that licence, and the requirements of the licence have been further clarified for the licensee.

Submissions on wider issues

Submissions also related to the issues identified in Part B for the Wood Preservation Industry, including:

- stormwater
- chemical use and storage
- waste transport
- storage and disposal
- air pollution
- best environmental management practices.

These issues were considered when preparing the licence review approach for the Wood Preservation Industry and have been addressed by improvements to licences. These submissions will also continue to inform ongoing regulation of the industry through education programs, enforcement campaigns, and policy reviews.

IMPROVING ENVIRONMENTAL PERFORMANCE IN THE WOOD PRESERVATION INDUSTRY

Purpose of environment protection licences

Environment protection licences set environmental performance requirements for activities determined by the POEO Act. Licences may specify a required performance outcome or a specific environmental management practice.

Environment protection licence conditions take into account factors such as the surrounding environmental conditions, the type of activity, and the available technology. Pollution reduction programs and pollution studies are often attached to licences, requiring licensees to carry out work within a specified time frame to enable them to comply with environmental requirements.

Licence reviews

Eleven wood preservation activity licences, including those held by the five previously audited sites, have been reviewed.

Section 78 of the POEO Act requires the DEC to review environment protection licences once every 3 years. The reviews allow the DEC to:

- focus on desired environmental outcomes
- enhance consistency between licences issued to the industry
- improve the effectiveness of the licensing system
- strengthen our accountability to stakeholders.

By successfully integrating reviews with other regulatory activities, such as compliance audit programs, a more holistic licensing approach can be developed. The comprehensive approach piloted with the Wood Preservation Industry has also involved broad communication with industry, local government and the community, to best achieve improvements in environment protection.

A licence review approach was developed to summarise the issues raised in Part A, the best environmental management practices identified in Part B, and the issues raised in public submissions.

Site inspections of the 11 licensed wood preservation sites were conducted, and environmental management issues were discussed with the staff of those sites. The issues identified in Part A and the best environmental management practices identified in Part B were generally found to be relevant to all 11 sites.

To choose the most effective regulatory response, each licensee's environmental performance was assessed, taking into account the environmental sensitivity of each site. We found that:

- four licensees were conducting appropriate monitoring and had some form of feedback loop to improve controls where monitoring indicated a risk to the environment
- five licensees had controls over the identified risks to the environment, but were not monitoring the effectiveness of those controls in accordance with identified best environmental management practices
- two licensees had little or no knowledge of environmental issues at the site, and little or no controls over some identified risks to the environment.

Changes to environment protection licences were negotiated with individual licensees following these site inspections.

Changes to licence requirements

The changes made to the 11 licences enhance requirements for a range of environmental performance areas, consistent with the best environmental management practices identified in Part B.

Use or storage of preservatives

Current licence conditions require that the handling, movement and storage of all preservatives must be carried out in a 'competent manner'. During site inspections, officers further clarified that the best environmental management practices outlined in Part B represent a 'competent manner' for carrying out wood preservation activities.

The best environmental management practices regarding use and storage of preservatives include the following:

- all bulk and packaged preservatives should be off-loaded directly to the chemical storage area
- all areas where preservatives are stored and used should be imperviously bunded, roofed and secure
- all storage and mixing tanks should be fitted with high-level alarms, level indicators and fail-safe devices that will automatically shut off the liquid supply to prevent overflow
- all treatment vessels should be inspected regularly and certified
- the piping system delivering preservative between storage tanks, mixing tanks and treatment vessels should be closed (that is, isolated from the water supply and drainage systems)
- all valves controlling preservative delivery between storage tanks, mixing tanks and treatment vessels should have locking devices to prevent accidental or unauthorised delivery.
- all drainage collection sumps should be fitted with alarms to warn of overflow
- operators should follow regular maintenance and inspection schedules.

Licensees were also reminded that the requirements of the *Pesticides Act 1999* apply to their activities.

Pollution of stormwater

Part B identified the following best environmental management practices to manage risks of stormwater pollution;

- All uncontaminated surface stormwater should be diverted away from the chemical storage, treatment, drip pad and timber storage areas.
- All contaminated stormwater should be collected and either re-used or treated prior to discharge.
- All chemical storage, treatment and drip pad areas should be roofed and bunded.
- All freshly treated timber should be held on the drip pad area until the preservative is 'well-fixed'.
- Operators should regularly monitor all discharges to waters and the water quality of adjacent water bodies.

We considered that four licensees needed to improve their awareness of the onsite risks of stormwater pollution. In addition to a study required for one site as part of the audit follow-up, three sites were required to carry out pollution studies designed to identify opportunities for improvement by adopting best environmental management practices. The licence review findings and the outcomes of these studies will together form the basis for negotiating environmental improvement programs at each site.

Air pollution

The best environmental management practices identified in Part B regarding the risk of air pollution include:

- all discharges to air from ventilation equipment should be directed through filters or scrubbers
- all discharges to the atmosphere through vents from the vacuum system and exhausts from vacuum pumps should be directed through a mist eliminator or condensing trap, as appropriate.

Most licensees were aware of the air pollution risks involved with burning treated timber. Nine licences were changed to prohibit the burning of treated timber on site, to reinforce the requirements of the Protection of the Environment Operations (Control of Burning) Regulation 2000 and the best environmental management practice of not incinerating treated wood, sawdust or shavings, outlined in *AS/NZS 2843.2:2000, Timber preservation plant safety code Part 2: Plant operation*.

Because of site-specific environmental sensitivity, two licensees have been required to control emissions to air from wood preservation treatment vessels and preservative storage tanks.

Another licensee has been required to carry out a pollution study of air emission contaminants from wood preservation treatment vessels and preservative storage tanks. The findings of this study will guide the adoption of the best environmental management practices referred to above.

Soil and groundwater contamination

Licensees of plants that use, or have in the past used, 'heavy' preservatives, such as CCA, creosote and pentachlorophenol, should have a good awareness of the risk of soil contamination and of the location and quality of ground water in the area.

In addition to monitoring the water quality of groundwater bodies, Part B identified some best environmental management practices that could be adopted to manage the risk of soil and groundwater contamination, including:

- regularly collecting, and if possible recycling, all preservative drips and spills in the timber storage area
- fitting all bunds with leak detection systems that are regularly monitored.

Six licensees were required to undertake studies of the quality and location of ground water. These studies will be used to establish an appropriate program of groundwater monitoring at each site.

Ensuring that treated timber is 'well-fixed' before it is removed from the sealed drip pad area of the site is a key method of managing the leaching of CCA preservative from stored treated-timber. This mitigates not only the risk of contaminating soil, stormwater and ground water but also the risk of arsenic exposure to humans. Eight licensees using CCA are required to begin monitoring whether CCA-treated timber leaving the drip pad area is 'well-fixed' and will be required to hold the timber on the drip pad area until fixation has occurred.

Planning for emergencies

In Part B, in addition to the practices addressing the risks from chemical use outlined above, the following best environmental management practices were identified, to manage the risks to the environment from emergencies:

- operators should ensure adequate staff delegation and training in emergency procedures
- risk-specific fire fighting equipment should be installed, maintained and certified
- all flammable materials should be safely stored and vessels containing dangerous materials should be clearly marked (as per WorkCover NSW requirements)
- all electrical equipment in areas containing flammable materials should be of flameproof design
- the piping system delivering preservative between storage tanks, mixing tanks and treatment vessels should be fitted with back-flow prevention devices
- operators should ensure that fire-fighting plans include control over the volume of fire-water used and control of fumes and smoke by water fog

- operators should ensure that there is adequate capacity for containment of fire-water and that they have plans for recovery and disposal of fire-water
- all stormwater drainage outlets from the site should have cut-off valves fitted.

Ten licensees are now required to prepare and maintain emergency plans, covering the adoption of these practices. In addition to this, the importance of communicating with local emergency services about emergency response plans has been highlighted to all licensees.

Storage, transport and disposal of waste

The best environmental management practices outlined in Part B regarding risks from preservative contaminated waste include:

- operators should manage treatment processes to minimise and recycle sludge wastes
- all waste should be segregated and stored in adequately labelled, appropriate containers
- all waste storage areas should be imperviously bunded, roofed and secure
- operators should seek to re-use treated wood waste rather than dispose of it
- operators should keep appropriate records of waste classification, storage and disposal.

Wood preservation plants using CCA and TBT-based LOSPs are likely to be generating hazardous chemical sludge wastes from pressure treatment. Licensees were reminded that waste generators are required to assess, classify and manage all wastes generated on-site, including chemical sludge and contaminated material wastes, in accordance with the POEO Act and the *Environmental Guidelines: Assessment Classification and Management of Liquid and Non-Liquid Wastes* (EPA 1999; the ‘Waste Guidelines’).

Additional requirements were added to four licences regarding waste storage and waste tracking.

Part B identified the fact that three General Approvals of Immobilisation have been issued relating to waste timber treated with CCA, creosote and Tanalised[®] E, respectively. These Approvals recognise that the particular contaminants specified in each Approval should be well-trapped in the timber’s cell structure, and that contaminants can be assessed and classified based on the results of a toxicity characteristics leaching procedure (TCLP). Any other contaminants in the waste must be assessed in accordance with the Waste Guidelines in the normal way. Each Approval also contains specific conditions regarding waste management and disposal that must be complied with.

Regulation of non-scheduled sites

Wood preservation sites that are not required to hold an Environment Protection Licence are regulated under the POEO Act by local councils. To support councils in this environment protection regulatory role, we have shared the results of our work with the Wood Preservation Industry by sending Part A and Part B to all local councils and regional organisations of councils in NSW.

DEC officers also accompanied local government officers on inspections of two smaller wood preservation sites that are regulated by local councils. Although these operators were using lower-risk preservative chemicals containing boron, most of the compliance audit issues and the best environmental management practices were still found to be relevant to these sites. The inspections improved both operators’ awareness of risks to the environment and helped them to improve their environmental performance. Recommendations given to these sites by the local government officers were consistent with the requirements placed on Environment Protection Licences.

This program has successfully laid the groundwork for more consistent regulation of the Wood Preservation Industry in NSW, and the DEC will continue to support local government to promote environmental improvements.

Keeping regulation in step with industry changes

Premises where wood preservation activities are undertaken and that meet the following criteria 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 Wood Preservation Industry is actively adopting new chemicals and technologies to improve timber protection and service performance. New chemical pesticides are registered by the Australian Pesticides and Veterinary Medicines Authority (APVMA) before their commercial use. The DEC is considering changes to Schedule 1 of the POEO Act to ensure that preservation plants using these newer pesticides in quantities likely to pose a risk of harm to the environment continue to be regulated through environment protection licences.

Non-regulatory changes: industry standards

The Wood Preservation Industry has worked to develop guidance materials for preservation plant operators. These are published as Australian Standards *AS/NZS 2843.1:2000 Timber preservation safety code Part 1: Plant design* and *AS/NZS 2843.2:2000 Timber preservation safety code Part 2: Plant operation*. Following our review of best environmental management practices (reported in Part B), we identified that some aspects of these standards could be enhanced. Standards Australia has indicated that this information will be considered during its next review of the standards.

Standards Australia is also currently finalising draft standards outlining guidance for the safe use and handling of preservative-treated timber and finalising a review of Australian Standard *AS/NZS 1604 Specification for preservative treatment* (which establishes how much preservative should penetrate and be retained within treated-timber products for them to be considered 'fit-for-purpose'). The DEC has recommended that the review of *AS/NZS 1604* consider setting acceptable preservative concentration ranges for each grade of product use, rather than retaining the current minimum preservative concentrations. By promoting the correct treatment of timber, rather than over-treatment, this will help reduce the risk to the environment posed by pesticides.

FUTURE DIRECTIONS REGARDING THE WOOD PRESERVATION INDUSTRY

The following ongoing issues regarding the Wood Preservation Industry have been identified.

Pesticide registration

In December 2003, the APVMA announced a draft decision to restrict the registration of CCA for treating timber with which the 'general community is likely to come in frequent close contact'. The DEC will continue to contribute to the APVMA review of the registration of arsenic-based preservatives, by providing the findings of our environmental compliance program. The APVMA is expected to finalise the review later in 2004. We will work with the Wood Preservation Industry to ensure that changes to CCA registration are incorporated into preservation plant operation in NSW.

Treated timber waste

The DEC has identified CCA- and creosote-treated timber waste as a 'waste of concern' that is suited to an extended producer responsibility scheme. This is a high-volume waste that currently has poor resource recovery potential, although a number of studies are underway to investigate recovery options. Both submissions from the public on the environmental compliance program with the Wood Preservation Industry and submissions reported in the DEC's *Extended Producer Responsibility Priority Statement 2004* indicate continued public concern about the difficulties of identifying treated timber waste and correctly disposing of it.

Although CCA- and creosote-treated timber waste was not chosen for extended producer responsibility implementation in 2004, in part because of uncertainty about the impact of the APVMA's review of arsenic-based timber preservatives, treated timber remains a waste of concern as a precautionary measure. The DEC supports continued action at a national level to develop consistent national standards for managing treated timber waste.

The DEC has developed an internal policy for disposing of CCA- and creosote-treated timber waste from its National Parks and Wildlife Service and Botanic Gardens. Such waste goes to solid waste landfills with leachate collection systems. A number of other State Government agencies have developed similar policies for the disposal of treated timber waste.

Overseas developments

Global trends within the industry are likely to affect preservative suppliers, wood preservation operators, users of treated timber and regulatory authorities in NSW. In Part B, the DEC noted the following global trends in the industry:

- reduction in the use of CCA-treated timber in domestic applications owing to arsenic risk assessments, the precautionary principle and perceived shifts in consumer demand
- reduction in the use of creosote to treat timber owing to the environmental risks posed by PAHs
- restrictions being placed upon some uses of TBT
- greater restrictions being placed upon the disposal of treated timber wastes.

CCA use

Since December 2003, the use of CCA preservatives to treat timber destined for residential (domestic and contact) uses has not been allowed in the USA and Canada. Although retailers are still selling stockpiles of CCA-treated timber that was treated before 31 December 2003, the Wood Preservation Industry has

now made the transition to treating with alternative preservatives such as ACQ.

As reported in Part B, members of the European Union, such as the United Kingdom, have published regulations limiting the marketing and use of CCA-treated timber for domestic, marine and most agricultural uses from June 2004.

In June 2003, the Environmental Risk Management Authority of New Zealand (ERMA New Zealand) decided not to change the registration of CCA following a review of the potential public health risks arising from the continuing use of CCA-treated timber. ERMA New Zealand found that the extent of any risk to public health arising from CCA remains unclear but is considering further investigation into the possible environmental and occupational health risks arising from CCA. ERMA New Zealand recommended that one of the industry's best practice frameworks, the *Approved Code of Practice for the Safe Use of Timber Preservatives and Antisapstain Chemicals*, be updated.

In November 2003, a draft United States Environmental Protection Agency (USEPA) probabilistic risk assessment found that exposure to arsenic from CCA-treated decks and playground equipment presents an unacceptable increase in the risk of cancer to children. The report did not recommend the removal of existing structures, but noted that the risk could be significantly reduced by sealing the timber and washing hands following contact with the timber. USA regulators have commenced a 3-year study into how well sealants can reduce or eliminate exposure to arsenic in CCA-treated timber.

Creosote use

Creosote is a chemical mixture of up to 300 different compounds, including PAHs, some of which are known carcinogens. Because of its smell (diesel-like) and feel (often sticky), creosote-treated timber is not generally used for residential or contact uses, but because of creosote's efficacy in protecting wood, creosote-treated timber is used in industrial applications.

The USA wood preservation industry has asked regulators to allow creosote to be used only for pressure treatment of timber and to remove the registration of surface application (paint-on) products. In December 2003 the USEPA released a preliminary risk assessment identifying the potential cancer risks to handlers and post-application workers from exposure to creosote. The USEPA is finalising the risk assessment following the close of public submissions in February 2004.

TBT use

TBT-based products (mainly anti-fouling paints) were withdrawn from marine use in Australia in July 2003. TBT naphthenate is used in some wood preservatives as a fungicide, but because those preservatives are not approved to treat timber for marine applications no change has been made to the registration of TBT-based wood preservatives.

In New Zealand, ERMA New Zealand has announced that TBT-based wood preservatives will be placed on the priority list to be considered for reassessment.

EVALUATION OF PILOT PROGRAM

This pilot program has shown that the comprehensive approach to environmental compliance is an effective tool for contributing to improved industry environmental performance. To evaluate the success of aspects of the pilot, we:

- sent out over 350 questionnaires, with the Part A and Part B reports, asking respondents to evaluate the success of our communication with external stakeholders
- logged the activity at our website to assess the effectiveness of that mode of communication
- logged public queries, submissions and complaints to assess the impact of our media releases
- conducted internal questionnaires and resource tracking to assess the internal benefits of the comprehensive approach.

By integrating our compliance audit program more directly with licence reviews we have improved the effectiveness of both programs. Audit findings were used directly to guide our overall approach to reviewing licensing decisions for the Wood Preservation Industry. Recommended actions arising from non-compliances identified during audits were directly followed-up during licence review inspections.

By identifying best environmental management practice for the Wood Preservation Industry, we gained a useful reference point to demonstrate our expectations for environmental performance. In acknowledging the global trends that might affect environmental management practices in NSW, we established a licensing approach for the Wood Preservation Industry that will continue to allow consistent regulation into the future. Of the 41 respondents to our external questionnaire, 85% felt that the comprehensive approach would lead to environmental improvements in the Wood Preservation Industry.

The pilot offered improved opportunities for interested stakeholders to participate in our environmental compliance programs. Various stakeholders, including other State agencies and the industry organisation, the Timber Preservers Association of Australasia, contributed to our research into best environmental management practices. These contributions improved the contextual information (contained in Part B) provided to the community to inform submissions to licence reviews. We received much wider involvement in the review of the licences for the Wood Preservation Industry than with past review programs: regulators, industry and the general public provided submissions that were considered during licence reviews. By reporting the progress of our work in the Environmental Compliance Reports we have also promoted public debate around the environmental issues facing the Wood Preservation Industry, and we have been able to effectively link up with programs such as the APVMA review of CCA registration.

Seventy-three per cent of respondents to the external questionnaire felt that there was enough information in the Environmental Compliance Reports (Parts A and B) to allow readers of the reports to make submissions. The responses to the questionnaire show that, by communicating the program through a wide range of media, we reached more people who were interested in our work. Most respondents found out about the program through workplace information, peak group forums and/or the EPA website.

The active participation of industry, licensees, State agencies, local government and the community in this pilot has been critical to the successful outcomes, and we will adopt the same strategies with future environmental compliance programs to encourage more open and effective channels of communication with our stakeholders.

WHERE TO FROM HERE?

This report, *Part C Final Report*, outlines the steps that have been taken by the DEC to establish a regulatory framework that is consistent with best environmental management practices worldwide and that will lead to improved environmental compliance in the NSW Wood Preservation Industry.

In addition to ongoing pollution studies and reduction programs implemented as part of licence reviews, a number of further educational and regulatory actions have been identified.

These actions include:

- Giving continued help to the APVMA review of CCA registration.
Our findings on the current environmental performance of wood preservation plants helped the APVMA to assess some of the environmental risks posed by CCA and CCA-treated timber. Our review of best environmental management practices helped the APVMA to assess the adequacy of the industry's plant safety code to manage environmental risks.
- The development of projects to help the Wood Preservation Industry to adopt cleaner industry initiatives.
Our program has identified some areas of plant operation where improvements could be achieved through an education partnership between the DEC and the Wood Preservation Industry.
- Specific investigations into waste generation at preservation plants.
Our findings have helped inform an investigation into waste management practices, including burning and other disposal practices, at wood preservation plants. This program has included education about POEO Control of Burning Regulation requirements.
- The further development of policies within the DEC.
Our research into the global trends within the industry has helped to inform the development of treated-timber use policies in the DEC's National Parks and Wildlife Service and Botanic Gardens.

The licensing approach developed from this program will continue to be used to guide the consideration of any future development applications for new wood preservation sites. We will continue to work with the Wood Preservation Industry to improve environmental performance at sites in NSW.

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