

[Redacted]

Australian Pesticide and Veterinary Medicines Authority  
PO Box 6182  
KINGSTON ACT 2602

Dear [Redacted]

**Copper:Chrome:Arsenate (CCA) wood preservative products - Specific parts of the Australian Standards that need to be enforced to reduce harmful effects to the environment** [Redacted]

Thank you for your request for advice received 12 May 2008 seeking advice from the Department of the Environment, Water, Heritage and the Arts (DEWHA) on the above matter.

Our conclusions and recommendations are as follows.

1. Label statements for CCA products were revised as an outcome of the arsenic timber treatments review. Australian Standards AS/NZS 2843.1:2000 and AS/NZS 2843.1:2000 were consulted in considering how product labels should be revised. Wording of usage instructions, cautions and protection statements to protect the environment were proposed in the review, and these were revised in response to comments provided by industry. Compliance with current labels provides the minimum required level of environmental protection.

Consultation with the current versions of the same standards (AS/NZS 2843.1:2006 and AS/NZS 2843.2:2006) provides further guidance, and full compliance with the standards which, encompasses the label requirements, provides additional levels of protection for the environment. The sections and subsections of AS/NZS 2843.1:2006 and AS/NZS 2843.2:2006, which are specifically reflected in the label, are detailed in Attachment A.

2. All users, whether large or small scale, and new or existing operations, are legally required to be in compliance with the label. All users should already be meeting the requirements of the label in regard to operation of the plant and use of the chemical, and whether or not all the Australian Standards are specifically reached, the facilities available at a site should already be sufficient that the label requirements can be met.

Australian Standards AS/NZS 2843.1:2006 and AS/NZS 2843.2:2006 are intended to enable Australian (and New Zealand) timber preservation plant sites to operate to the world's best practice. Compliance with all parts of the standards pertaining to protection of the environment would provide a higher standard of environmental protection than only addressing label requirements, as may be required to varying degrees by the local state/territory authority. Full compliance with the standards should be achievable for

new sites, but it is recognised that there may be various difficulties in achieving full compliance with the standards in existing sites.

3. As discussed in the arsenic timber treatments review, the nature of the product and the equipment involved in its application, compliance with the label requires knowledge, skills and equipment beyond that which a general member of the public would reasonably

possess. Therefore to ensure that label requirements are met, Restricted Chemical Product status is warranted to allow for specific training of users of the product and for further state/territory involvement in the management and licensing of CCA timber treatment operations and their facilities.

4. We have consulted with state/territory environment agencies through the National Chemicals Environmental Management Framework (NChEM), and received a comprehensive response from the NSW Department of Environment and Climate Change (DECC), with no other replies. This has been included as Attachment B. We have aligned DECC's response to the relevant sections of the respective standards for your convenience.

5. You asked that we comment further on training courses. Item 19 of the Review Summary Report (APVMA 2005) noted public comments on training needs and the types of training available, including in-house and certified training courses. In its response, the APVMA referred to the Forest Industry competencies FPIS2007A (Conducting timber treatment plant operations) and FPIS340A (Optimising timber treatment plant operations). As you have indicated, these competencies have now been superseded. The current competencies are FPISAW2210A (Prepare for timber treatment operations) and FPISAW3201A (Treat timber), which are described by NTIS (2005). This website indicates that the courses to which these competencies apply have been developed by the Forest and Forest Products Employment Skills Company Ltd and are available through various training providers, such as the NSW Department of Education and Training. We understand that this and/or additional in-house training is provided by registrants.

DEWHA has limited knowledge of the training provided, except as available from the website NTIS (2005). The descriptions of course content for the Forest Industry competencies indicate that the training does give attention to meeting environmental protection requirements in the use of CCA and other timber treatment products. If it is not already aware, the APVMA should confirm that knowledge provided for personnel using CCA includes a general understanding of the composition of CCA and its behaviour in timber, including particularly why fixation of chromium is important (note the comment to the review that some mill managers do not understand the process and instruct operators to undertake unsafe practices, such as not waiting for adequate fixation because the timber needed immediately). Required skills and knowledge for FPISAW3201A from NTIS (2005) are listed in Appendix C. Any person now using CCA should have these competencies and any additional site specific training needed.

I trust that these responses assist you with what you required - please let us know if you need further comments.

Yours sincerely

[Redacted]

Acting Director

Chemical Assessment Section

6 November 2008

## **References**

APVMA (2005). The reconsideration of registrations of arsenic timber treatment products (CCA and arsenic trioxide) and their associated labels. Report of review findings and regulatory outcomes. Summary report.

[www.apvma.gov.au/chemrev/downloads/arsenic\\_summary.pdf](http://www.apvma.gov.au/chemrev/downloads/arsenic_summary.pdf) (October 2008).

NTIS (2005). National Training Information Service (NTIS). FPI05 Forest and Forest Products Training Package. <http://www.ntis.gov.au/Default.aspx?/trainingpackage/FPI05/> (October 2008).

## **Attachment A**

Label instructions provided on current CCA product labels are reproduced below. These have been drawn from the label for Impretech C.S., but they appear to be common to all current labels. These statements are consistent with the recommended statements originally provided by DEWHA, as amended in subsequent discussions regarding industry responses.

The comments which follow in italics indicate the operator training and facilities which we consider are most important to enable these label requirements to be met. Reference is made to the specific sections of Australian Standards AS/NZS 2843.1:2006 and AS/NZS 2843.2:2006 which need to be enforced to reduce harmful effects to the environment. Our concern is that the requirements indicated in these sections/subsections of the Standards should be addressed to a degree ensuring adherence to the label instructions. Specific requirements such as the adequacy of bunding and plant surfaces and steps needed in stormwater management need to be negotiated with local jurisdictions.

### **GENERAL INSTRUCTIONS**

Product is a water based liquid concentrate that is readily diluted in water for use in approved vacuum-pressure facilities. The product should be diluted with water to the concentration required to give the required retention of CCA for the type of timber being treated and the desired Hazard Class of the intended timber use.

*Special training is required to enable operators to undertake the treatment process in a competent fashion, with skills to use the specific equipment at the treatment plant, and understanding of the type of timber to be treated and the requirements for treating that timber to a particular Hazard Class and purpose of use.*

*Section 4.1 of AS/NZS 2843.2:2006 specifically refers to the necessity for training and instruction of staff responsible for the treatment area operation, undertaken by an approved accredited scheme. Although this is placed in the context of worker operational safety, DEWHA notes that it is also essential for ensuring environmental safety (the Foreword to both AS/NZS 2843.1:2006 and AS/NZS 2843.2:2006 indicates that the Australian Standards are directed towards “assisting prevention or mitigation of the health risk of plant personnel and environmental contamination from timber preservation plant sites”). Various other sections make reference for more specific training needs indirectly relevant to environmental protection, such as for chemical handling, emergency responses and spills management, but these are more directed at worker safety (Foreword, Sections 2.4 and 3.7).*

### **MIXING AND VACUUM/PRESSURE OPERATIONS**

Mixing and vacuum/pressure treatment operations must be conducted on impervious, sealed and bunded areas with facilities to contain and collect leakage, spills, excess treatment solution, drips and waste materials. Avoid spilling product while mixing. If product is spilled, follow instructions for management of liquids, sludge or waste material containing CCA residues.

*Operations must be conducted in a responsible, proficient manner, minimising release through careless handling and poor maintenance. Appropriate facilities, procedures and training of staff to collect and manage leakage, spills, excess treatment solution, drips and*

*waste materials must be in place. The Australian Standards provide further details of the types of surfaces and nature of bunding and drains which are appropriate to contain and collect any chemical solutions which are released.*

*Section 3 of AS/NZS 2843.1:2006 refers to timber preservation plant site layout, with Sections 3.1 (General), 3.2.3 (stormwater management for treatment area plant water), 3.3 (holding capacity – general, treatment vessel bund, joints in treatment are paving, and chemical handling and mixing), 3.4 (containment of spillage), 3.6.1 (treatment area – construction – general) and 3.6.4 (treatment area – construction – drip pads) all pertinent to mixing and vacuum/pressure operations.*

*Section 3 of AS/NZS 2843.2:2006 refers to spills management, with subsections 3.1, 3.3, 3.5 and 3.6 most relevant to environmental protection. Section 7 of AS/NZS 2843.2:2006 refers to waste management, with Sections 7.1 (General) and Section 7.2 (Copper Chromium Arsenate) most relevant to CCA waste arising from mixing and vacuum/pressure operations.*

#### MANAGEMENT OF FRESHLY TREATED TIMBER (DURING DRIP DRYING AND THE FIXATION PROCESS)

Freshly treated timber must be placed on drip pads that ensure treatment solution is contained and can be collected for recycling. Treated timber must not be moved from the drip pads until the timber surface is drip free. Treated timber must then be held on the plant yard until chromium has become well fixed to the wood (at least 99% of chromium fixed or which gives a result of less than 0.5 ppm Cr using a field test kit such as Merck Aquaquant Test Kit No. 14441 or equivalent). Water contaminated by product must not enter natural watercourses or waterbodies or reach groundwater except as provided by the State or Territory authorities and/or planning authority. This can be achieved by storing timber in a roofed area that prevents rainwater contact with the timber or storing in a sealed, bunded area with provision for storing and processing drainage water. [Note: the chromotropic acid test may provide a practicable alternative means of determining fixation is satisfactorily complete, but is not yet referred to in the Australian Standards – it is listed as a standard method for the US and Canadian industries].

*Operators must ensure that these procedures are followed – suitable procedures should therefore be in place to meet local requirements and operators must be appropriately trained, including an understanding of fixation of the CCA components and the need to ensure Cr is fixed before timber leaves the plant yard.*

*AS/NZS 2843.1:2006 defines “drip free” as meaning that “the treatment solution has stopped dripping from the timber and that no further dripping occurs when the timber is moved, tilted, or exposed to heat or sunlight.” Comments on this issue were summarised in Item 14 in Appendix 3 of APVMA (2005), agreeing that it was important to ensure all CCA plants in Australia adhere to the minimum requirement of a 48-hour holding time specified in AS/NZS 2843.1:2000, and asking that the interpretation and implementation of what is required should be consistent among various state authorities. This definition clarifies what is required without necessarily requiring holding time . 48 h, but demands that operators check that the timber is in fact “drip free”..*

*Fixation to the specified standard is essential before timber is moved from the plant yard, as the CCA components are more readily leached prior to fixation.*

*Appropriate design and operational measures must be used to ensure that soil and groundwater on and off site are protected from contamination due to direct dripping and leaching/runoff through rainfall. Water contaminated by CCA, or CCA components released from treated timber must be collected, controlled and managed so that unintended off site contamination is prevented. The ability to manage these requirements clearly has implications for site design, maintenance and operation. As well as being appropriately designed, the drip pad and plant yard areas must have sufficient capacity for operators to manage the treated timber without breaching the above requirements.*

*Section 3 of AS/NZS 2843.1:2006 refers to timber preservation plant site layout, with Sections 3.1 (General), 3.2.2 (stormwater management for treated-timber storage area water), 3.3 (holding capacity – general, treatment vessel bund, joints in treatment area paving, and chemical handling and mixing), 3.6.1 (treatment area – construction –general) and 3.6.4 (treatment area – construction – drip pads) all pertinent.*

*Section 8.1 of AS/NZS 2843.2:2006 refers to environmental management and reporting, specifically regarding stormwater management (cf. Section 3.2 of AS/NZS 2843.1:2006). The indicated requirements should all be addressed, in agreement with the requirements of local jurisdictions.*

*Section 7 of AS/NZS 2843.2:2006 refers to waste management, with Sections 7.1 (General), Section 7.2 (Copper Chromium Arsenate) and Section 7.7 (treated wood, sawdust and shavings) all applying.*

## MANAGEMENT OF LIQUIDS, SLUDGE OR WASTE MATERIAL CONTAINING CCA RESIDUES

Do NOT allow spilled product or mixed solution to enter drains, streams, rivers or waterways. Cover spilled product or mixed solution with sand (NOT sawdust) and/or a suitable stabilising agent (such as a 90% lime and 10% sodium metabisulfite mixture).

Where practicable, spilt material, washings or other materials containing CCA residues from all stages of the mixing, vacuum/pressure treatment, fixation and drying processes or from other sources on the site should be collected and returned to the treatment process. CCA solid residues shall be removed from the treatment process to prevent deposition on freshly treated timber.

If not used or re-used directly in the treatment process, all liquids, sludge or other waste containing CCA residues must be recycled to recover the active ingredients, or disposed of off site according to local State Government regulations.

Timber waste or sawdust treated with this product must not be incinerated except in plants specifically designed for this purpose and where volatile arsenic release and toxic ash can be retained.

Timber waste or sawdust treated with this product must not be used as natural bedding.

*Appropriate facilities must be available and operators must be trained to understand and implement these requirements, using procedures in place to meet them.*

*Section 7 of AS/NZS 2843.2:2006 refers to waste management, with Sections 7.1 (General), Section 7.2 (Copper Chromium Arsenate), Section 7.7 (treated wood, sawdust and shavings) and 7.8 (used containers) all applying.*

## PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND THE ENVIRONMENT

Do NOT contaminate streams, rivers or other waterways with this chemical or used containers.

*No additional comments*

## STORAGE AND DISPOSAL

Store the product in a locked, cool, well-ventilated, bunded and roofed room, away from children, animals and food.

For returnable containers – Empty contents fully into application equipment. Close all valves and return to the point of supply for refill or storage. Do not dispose of chemical on site.

For single use containers - Triple or preferably pressure rinse containers before disposal. Add rinsings to the treatment process. Do not dispose of chemicals on site. If recycling, replace cap and return clean containers to recycler or designated collection point. If not recycling, break, crush, or puncture and bury empty containers in a local authority landfill. Empty containers and product must not be burnt.

*Section 7.8 of AS/NZS 2843.2:2006 refers to waste management in regard to used containers.*

## **Attachment B**

DEWHA conveys the following considerations provided by NSW DECC. These are specifically for NSW and do not necessarily represent the views of other states/territories.

NSW DECC indicated that they have provided a coordinated response across relevant parts of DECC and recommended elements they considered essential for a mandatory environmental standard. They noted that NSW prefers an outcomes-focused rather than prescriptive approach to regulating industry, and have reworded some of the requirements with that in view.

We have related their comments to the relevant sections of both the Australian Standards, with some reordering and additional text to assist.

### ***Australian/New Zealand Standard. Timber preservation plants. Part 1: Timber preservation plant site design.***

*Plant site – AS/NZS 2843.1:2006, Sections 2.1-2.5 (Treatment Area) and Section 1.7 (Approval by Regulatory Authorities)*

The following points indicated in AS/NZS 2843.1:2006 should apply to all new sites:

- avoidance of steeply sloping sites (slopes should be < 1:10);
- soil types from loam to clay (>15% clay), with approved protective measures if soils are permeable or located over aquifers;
- located with a buffer distance of at least 100 m between the plant and any watercourse and/or at least 800 m to any water supply storage unless the appropriate regulatory authority approves a reduced buffer distance (e.g. when site specific characteristics like topography, soil type or control measures within the plant mean the risk of release of CCA to the environment is likely to be lower than assumed);
- located in an area subject to floods not more than once in 100 years.

NSW DECC considers that an additional requirement beyond those listed in the Standards may be that new timber preservation plants must not be sited in sensitive sites such as wetlands, threatened species habitats or national parks, but this has not been discussed with other jurisdictions.

*Timber Preservation Plant Layout – AS/NZS 2843.1:2006, Section 3 (Timber Preservation Plant Site Layout) and Section 1.7 (Approval by Regulatory Authorities)*

Existing premises need to identify and manage any current contamination from historical practices in consultation with the relevant state/territory regulatory authority before deciding how to upgrade to meet current layout and operational requirements.

The critical aspects of plant layout are excellent stormwater management, chemicals management in accordance with the toxic substances standard, and appropriate barriers to

prevent soil and groundwater contamination in areas where timber is treated, dried or stored while fixing.

*Stormwater Management* – Section 3.2 in AS/NZS 2843.1:2006 and Section 8.1 in AS/NZS 2843.2:2006

Stormwater from all areas of the premises must be managed in accordance with best practice, including any relevant state/territory guidelines. Contaminated water and stormwater must each be managed separately.

Areas of the plant where chemicals are not used - like office buildings and worker facilities - must have stormwater collected and directed away from areas of the plant where chemicals are used. The water must be checked for potential contamination prior to any discharge off site. (Section 3.2.1).

Areas of the plant where chemicals are used or treated timber is stored must have stormwater collected for treatment or reuse. All water which has come into contact with CCA or other chemicals must be captured and managed in accordance with the relevant state/territory regulatory requirements and must not be discharged to waters. All contaminated water must be disposed of by evaporation, or removal to another facility which can lawfully accept and treat the contaminated water. (Sections 3.2.2, 3.2.3).

Water must not be allowed to accumulate in areas of the plant where chemicals are used or treated timber stored. Site operators should consider roofing over treatment and storage areas to minimise the volume of contaminated water requiring treatment or reuse. (Sections 3.2.2, 3.2.3).

*Chemicals Management - Sections 3.3.4 Chemical handling & mixing, 1.5 Transport and storage, and 1.6 Identification of timber-preservative containers*

All storage of chemicals on the premises must be in accordance with the requirements of AS/NZS 4452:1997 and other relevant standards.

*Barriers between timber and the ground and leak detection systems - Sections 3.3 (Holding capacity) and 3.6 (Treatment area – construction)*

The CCA treatment, drying and storage areas of the facility must have a barrier system that forms a secure barrier between the groundwater, soil and substrata and the CCA activities on the site. Acceptable barriers include:

- a clay or modified soil liner consisting of recompacted clay with an in-situ permeability (K) of less than  $10^{-7}$  ms<sup>-1</sup>.
- a natural geological barrier that is proven by competent geotechnical investigations to provide a secure barrier between the groundwater, soil and substrata and the site activities.
- a concrete or asphalt cement pad of a thickness of at least 100 mm, designed to withstand the loads from all machines, vehicles and equipment that are required to operate the facility.

Leak detection systems must be installed to monitor and ensure the impervious barrier retains its integrity.

*Movement of timber – Section 3.7 (Treated-timber storage area)*

Treated timber must not be placed directly in contact with the ground until relevant testing (such as a Merck kit test) is undertaken to show that the CCA is well fixed into the timber. “Well fixed” means a result of less than 0.5 ppm Cr (this indicates that fixation has occurred and that at least 99% of chromium is fixed).

*Security precautions – Section 3.8 (Access by unauthorized persons)*

All sites must be secure and prevent access of unauthorised persons.

***Australian/New Zealand Standard. Timber preservation plants. Part 2: Treatment area operation.***

As noted above in regard to AS/NZS 2843.1:2006, existing premises need to identify and manage any current contamination from historical practices in consultation with the relevant state/territory regulatory authority before deciding how to upgrade to meet the layout and operational requirements.

*Chemicals Management – Sections 1.5 Transport and storage*

Chemicals must be transported in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG Code).

*Emergency preparation and planning – Sections 2 (Emergency procedures) and 1.7 (Approval by Regulatory Authorities)*

All sites must maintain an appropriate emergency management plan that is prepared and implemented in consultation with the relevant regulatory authorities and emergency services. The emergency management plan must document systems and procedures to deal with all types of incidents (e.g. spills, explosions or fire) that may occur or that may be associated with activities that occur and which are likely to cause harm to the environment.

*Spills management – Sections 3 (Spills management), 7 (Waste management) and 1.7 (Approval by Regulatory Authorities)*

All sites must have an appropriate spill management plan that has been developed and implemented in accordance with state/territory regulatory requirements. All spills to unprotected areas must be reported to the relevant state/territory regulators.

*Security precautions – Section 4.2 (Access by unauthorized persons), Section 5 (Access to and use of facilities)*

All sites must be secure and prevent access of unauthorised persons.

*Training of staff – Section 4 (Worker operational safety), Section 5 (Access to and use of facilities)*

All staff must be appropriately trained in accordance with the relevant national requirements. All activities undertaken on site must be undertaken in a competent manner.

*Maintenance and operation of equipment – Section 6 (Equipment operation)*

All equipment must be maintained in a proper and efficient condition and in accordance with any relevant Australian Standards.

*Waste management – Sections 7 (Waste management) and 1.7 (Approval by Regulatory Authorities)*

All waste management (solid or liquid) must be conducted in accordance with relevant state/territory regulations. No treated timber, sawdust or shavings shall be disposed of by incineration. No material contaminated with CCA (such as containers, rags, spill absorbent material etc.) shall be disposed of by incineration. No waste shall be disposed of on site.

*Environmental management –Section 8 (Environmental management monitoring)*

*Stormwater Management (Section 8.1)*

See comments above on Section 3.2 in AS/NZS 2843.1:2006.

*General*

All handling of CCA preservatives must be in accordance with the relevant label.

## **Attachment C**

Required skills and knowledge for the Forest Industry competency FPISAW3201A are listed below (from NTIS 2005).

### *Skills*

- comply with legislation, regulations, standards, codes of practice and established safe practices and procedures for treating timber
- use and maintain relevant tools, machinery and equipment
- identify problems and equipment faults and demonstrate appropriate response procedures
- use appropriate communication and interpersonal techniques with colleagues and others
- accurately record and report workplace information, and maintain documentation
- efficiently and safely treat timber

### *Knowledge and understanding*

- applicable Commonwealth, State or Territory legislative, regulatory or certification requirements and codes of practice relevant to the full range of processes for treating timber
- organisational and site standards, requirements, policies and procedures for treating timber
- principles of cultural diversity and access and equity
- environmental protection requirements, including the safe disposal of waste material
- established communication channels and protocols
- problem identification and resolution
- types of tools and equipment and procedures for their use, operation and maintenance
- timber treating techniques
- handling of treated products and chemicals
- methods of visual inspection
- characteristics of timber and chemicals
- water and chemical management procedures
- storage systems and labelling
- procedures for recording, reporting and maintaining workplace records and information
- appropriate mathematical procedures for estimation and measurement.