LEAD-BASED PAINT MANAGEMENT ON ROADING STRUCTURES

SECTION I RESULTS OF SURVEYS

Transfund New Zealand Research Report 113

LEAD-BASED PAINT MANAGEMENT ON ROADING STRUCTURES:

SECTION I

RESULTS OF SURVEYS

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AN IMPORTANT NOTE FOR THE READER

The research detailed in this report was commissioned by Transfund New Zealand.

Transfund is a Crown entity established under the Transit New Zealand Act 1989. Its principal objective is to allocate resources to achieve a safe and efficient roading system. Each year, Transfund invests a portion of its funds on research that contributes to this objective.

The material contained in this report is the output of research and should not be construed in any way as policy adopted by Transfund New Zealand but may form the basis of future policy.

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EXECUTIVE SUMMARY

This is Section I of a report on a Research Project that had the objective to develop "environmental and health and safety guidelines, procedures and policies for the management and risk assessment of lead-based paint coatings on bridges and other roading structures in order to minimise the adverse impacts on the environment and thus to provide a consistent approach nationwide".

Section I reports on the results of a nationwide survey of road controlling authorities. This found that there is wide variation in their level of knowledge as to the extent of lead-based paint on their highway structures. From the data supplied it has been estimated that there are approximately 2300 road and state highway bridges in New Zealand with major steel components that may be protected with lead-based paint. With these bridges there is a potential for adverse impacts on the environment and public health to occur during maintenance painting.

Regional Councils who issue resource consents for the cleaning and painting of road structures coated with lead-based paint were also surveyed. This survey found that the conditions of consent imposed by Regional Council's varied widely, and that the standards required were often non-specific and not as rigorous as those required by AS 4361.1 and regulatory authorities both in Australia and the United States. The potential liabilities of owners of these structures and managers of maintenance work under the Resource Management Act 1991 (RMA) and Health and Safety in Employment 1992 (HSE) Act are discussed.

Section I Appendix 4 contains a *Model Policy Statement for Removal of Lead-based Paint* which is recommended for adoption by owners of these structures to minimise potential detrimental effects both to the environment and to their contractors. This will assist the owners of bridges and other roading structures to meet their statutory obligations with respect to paint removal projects.

Section II is a *Code of Conduct for Contractors.* This is a plain language guideline for contractors who undertake maintenance of roading structures containing lead-based paints, which will help them meet their legal requirements under the RMA and HSE Act.

Section III contains the *Guidelines for the Management of Lead-based Paint on Roading Structures.* This document provides information for owners of these structures and their maintenance engineers, consultants and contractors which will assist them to utilise the risk management process outlined in AS 4361.1 and so identify the most cost-effective maintenance strategy while minimising environmental, and health and safety risks during the maintenance work.

Section IV contains a *Model Specification for the Cleaning and Coating of Steelwork.* This is a generic standard specification that can be used as a base document for a steelwork maintenance contract where lead-based paint is to be removed, and which sets out information to be supplied by the owner, and requirements to be met by the Contractor. Guidance is given on the selection and specification of coating systems, and requirements covering the safety of contractors and the public, environmental

protection, monitoring and inspection of the work are recommended. Also included are standards for paint materials, surface preparation and containment structures where required for lead abatement.

ABSTRACT

This report is Section I of four "stand alone" documents that can be used by road controlling authorities, maintenance engineers, and industrial painting contractors when carrying out removal or maintenance of lead-based paints on steel roading structures, to comply with their statutory obligations and minimise effects on the environment and risks to workers and public health. Section I contains the results of a survey of local and regional authorities to determine their requirements when issuing a consent for this work. The number of roading structures in New Zealand that are coated with lead-based paint are quantified.

1. BACKGROUND

Many steel road bridges throughout New Zealand are coated with lead-based priming paint. While these coating systems remain intact and in good condition, they present no significant health hazard or environmental pollution threat. However, most of these coating systems will require repair or replacement at some stage during the design life of the structure. This maintenance work will then raise the issue of potential health risks and environmental pollution hazards associated with the lead-based paint removal while preparing surfaces for repainting.

Airborne lead-containing dust generated during paint removal operations creates a potential health hazard to all persons who may be exposed. In rural areas, farmland may become contaminated, thus posing a threat to grazing animals; or waterways may be affected, leading to a potential adverse impact on water quality or threats to aquatic life.

In any individual situation, hazards arising from lead paint removal may be presented to any of the following receptors:

- Workers conducting paint removal operations;
- Other workers in the vicinity of the removal operations;
- Public using or adjacent to the structure;
- Distant populations, residential or industrial, due to air dispersion;
- Grazing stock;
- Aquatic species; or
- Other animals and plants.

The risks arising from the potential hazards need to be assessed and adequately managed in order to avoid adverse impacts to worker or public health, or to the environment. The discharge of lead containing dust from paintwork maintenance is now being addressed by a number of Regional Councils in their Regional Air Quality Plans. However, in the current absence of any national environmental quality standards, the requirements set for the control of environmental risks associated with industrial deleading projects may vary substantially from region to region and, therefore, from project to project.

2. HAZARD MITIGATION

Deciding how to mitigate the hazards during hazardous paint removal operations can be extremely complex and requires the consideration of many variables. The degree of containment required may vary greatly, depending upon the specific circumstances of a project.

The likelihood of discharges of toxic metals directly onto soils or water, or indirectly through airborne deposits, also influences the selection of the appropriate type of containment system. The emission potential of the type of removal technique chosen must also be considered so that the most appropriate containment procedures are selected.

Protection of workers, the public and the environment during paint removal from industrial structures is therefore a serious challenge. The challenge to the manager of a hazardous paint removal project is to adopt a means to properly assess the health risks, environmental impact and emission potential of the operation so that the appropriate level of protection is provided. The operator must then consider methods to monitor containment or control system performance to ensure that the public health risks and environmental impacts are being satisfactorily controlled. The hazards to the workers performing the work, as well as those working near the project, must also be adequately assessed in order for protection to be provided.

3. RESEARCH PROJECT

As part of its 1997/98 Research Programme, Transfund New Zealand commissioned Opus International Consultants Ltd to undertake a project with specific objectives and expected benefits:

3.1 Objectives

3.1.1 Potential Liabilities

Research the potential liabilities faced by road controlling authorities as owners and managers of roading structures coated with lead-based or other toxic heavy metal containing paints by:

- Surveying the extent of the existence of such coating systems on roading structures in New Zealand;
- Surveying instances when such structures are located in sensitive areas with respect to environmental contamination or public health; and
- Surveying the requirements of the Regional Councils throughout New Zealand with respect to this matter through the inclusion (or the lack) of relevant Rules in Regional Plans.

3.1.2 Develop Code of Conduct

Develop a Policy document and a Code of Conduct for Contractors, able to be adopted by road controlling authorities, for the management of lead (or other toxic heavy metal) based paint on their structures.

These documents are intended to provide the framework for ensuring that all practicable steps are taken to protect the environment and the health and safety of contractors and the affected public from adverse impacts arising from lead paint removal or management work. They are designed to meet legislative requirements, set standards for contractors and promote good communications with regional authorities and persons affected by the project work.

3.1.3 Develop Methodology

Develop a simplified "user-friendly" methodology for carrying out risk assessment of lead-based paint removal/management projects.

3.1.4 Develop a Specification

Develop a generic contract specification as part of a lead-based paint management strategy, specifically covering paint removal and maintenance projects.

3.2 Benefits

Beneficiaries of this project will include all road controlling authorities in New Zealand, surface coating removal/maintenance contractors, Regional Councils, the environment, and public health.

The benefits will include the following:

- Facilitation of the selection and implementation of appropriate, applicable, cost-effective maintenance programmes which minimise the health hazards to workers and the public, and risks of contamination of the environment;

- Specific nationally accepted guidelines and standard conditions of contract which will create a "level playing field" which will enable all contractors to tender for projects on the same basis;

- Assurance that all legislative requirements will be met in the planning and execution of lead-based paint maintenance/removal projects, including compliance with relevant Regional Council rules;

- Means for facilitating the application and assessment process for resource consents for project work, by providing standard project compliance conditions which are nationally acceptable to Regional Councils, Ministry for the Environment and OSH.

4. POTENTIAL LIABILITIES OF OWNERS AND MANAGERS

4.1 Introduction

This section briefly discusses the main legislation affecting lead-based paint, which is the *Resource Management Act 1991, Health and Safety in Employment Act 1992*, and *Health Act 1956,* and the new *Hazardous Substances and New Organisms Act 1996* which will eventually bring into effect a different regime for hazardous substances.

4.2 Requirements of the Resource Management Act 1991

4.2.1 General

The Resource Management Act 1991 (RMA) is the principal statute for the management of natural and physical resources in New Zealand. Statutory management is implemented by a series of "instruments" to be prepared under the Act by various administrative authorities, including central government, and regional and territorial authorities. These instruments include national policy statements, national environmental standards, regional policy statements, regional plans and district plans.

Policy statements set out the environmental policy to be implemented through the plans. Plans may contain rules specifically regulating activities and their effects. The Act also requires certain activities to obtain resource consents from regional and territorial authorities.

4.2.2 Regional Councils

Regional Councils are responsible for the coastal marine area, water quality, water quantity, discharges to land, air and water, the beds of lakes and rivers, natural hazards, soil conservation, and hazardous substances. Each regional council must prepare a regional coastal plan for its region, and may prepare other regional plans addressing the other issues that it is responsible for. A regional plan that has been notified under the Act, but is not yet operative, is a "proposed regional plan". The controls in a proposed regional plan have status under the Act.

4.2.3 Territorial Authorities

Territorial authorities include district councils and city councils. They are responsible for the control of the effects of the use, development or protection of land, the subdivision of land, the emission of noise (except in the coastal marine area), activities on the surface of water in lakes and rivers, natural hazards and hazardous substances. Each territorial authority must prepare a district plan. A district plan that has been notified under the Act, but is not yet operative, is a "proposed district plan". The controls in a proposed district plan have status under the Act. Every territorial authority has a district plan, but many were prepared under the Town and Country Planning Act 1977.

4.2.4 Specific Controls

The Act restricts the following activities:

- The use of land,
- The subdivision of land,
- Use of the coastal marine area,
- Certain uses of beds of lakes and rivers,
- The taking, damming, diverting and use of water, and
- The discharge of contaminants into the environment.

If an activity is restricted by the Act, or by a relevant plan or proposed plan, a person may undertake the activity if a resource consent is held or an activity is an "existing use" in terms of the RMA.

4.2.5 Restrictions on the discharge of contaminants into the environment

Controls on the discharge of contaminants into the environment are likely to be of most relevance to activities involving lead paint.

You may not discharge any contaminants into water, or onto land in circumstances which may result in the contaminant entering water, unless you have a resource consent, or the discharge is expressly allowed by a regional plan and any relevant proposed regional plan. A contaminant is broadly defined in the Act to include any substance that

either by itself or in combination with other substances changes or is likely to change the physical, chemical, or biological condition of the water, land or air into which it is discharged.

You may not discharge any contaminant into air, or into or onto land, from an industrial or trade premises unless you have a resource consent, or the discharge is expressly allowed by a regional plan and any relevant proposed regional plan. The Act defines "industrial or trade premises".

4.2.6 Restrictions on the Use of Land

A person may use land for any purpose, provided the use does not contravene a rule in a district plan or a proposed district plan. The use of land includes:

- Any use, erection, reconstruction, placement, alteration, extension, removal, or demolition of any structure or part of any structure in, on, under or over the land; or
- Any disturbance of the land; or
- Any deposit of any substance in, on or under the land.

If the use does contravene a rule in a district plan or a proposed district plan, the person undertaking the use may apply for a land use consent, or, if the relevant conditions are satisfied, may rely on existing use rights.

4.2.7 Restrictions relating to water

You may not take, use, dam or divert water unless you have a resource consent or you are expressly allowed by a regional plan and any relevant proposed regional plan.

There are certain exceptions to this, such as the taking of water for domestic use or fire fighting purposes. These exceptions are listed in section 14 of the Act.

4.2.8 Restrictions on the subdivision of land

No person may subdivide land unless the subdivision is expressly allowed by the relevant district plan and proposed district plan, or a resource consent. There are a number of other situations where express authorisation is not required for subdivision.

4.2.9 Restriction on certain uses of beds of lakes and rivers

Activities on the bed of a lake or river are restricted unless you have a resource consent or the activity is expressly allowed by a regional plan and any relevant proposed regional plan.

You may not enter or pass across any lake or river bed, or disturb any plant on a river or lake bed, in a way that contravenes a rule in a regional plan or a proposed regional plan.

4.2.10 Restrictions on the use of the coastal marine area

The coastal marine area is defined to include the area between the line of mean high water springs and the outer limits of the territorial sea.

In this area, you may not undertake most of the activities covered above unless you have a resource consent, or the activity is expressly allowed by a regional coastal plan and any proposed regional coastal plan.

These activities also include:

- Destroying, damaging or disturbing the foreshore or seabed (including by excavating, drilling or tunnelling); or
- Depositing any substance in, on or under the foreshore or seabed; or
- Removing any sand or shingle.

4.2.11 Your responsibilities under the Act
You have the following obligations under the Act:

- The duty to avoid, remedy or mitigate any adverse effect on the environment arising from an activity carried out by the individual (section 17 of the Act).
- The duty to ensure that, when undertaking activities that impact on the environment, all the necessary resource consents have been obtained.

- The duty to ensure that the emission of noise does not exceed a reasonable level in certain circumstances.

Before undertaking any new activity you should check any relevant plan to ensure that you are not contravening a rule in that plan. It is advisable to contact the appropriate regional or district/city council to see whether particular conditions must be complied with in undertaking an activity, or resource consents are required.

4.2.12 Enforcement Action
If you breach the Act you may be subject to enforcement action. The enforcement action under the Act includes abatement notices issued by council officers, enforcement orders issued by the Planning Tribunal, and/or prosecution in the District Court. The maximum penalty for a prosecution is $200,000 or imprisonment for a term not exceeding 2 years. The Act also provides for a further fine of $10,000 a day for a continuing offence.

You may be prosecuted even though you did not intend to commit the offence. However, the Act provides two defences to prosecution. One defence relates to the situation where the action was necessary to save or protect life or health, or prevent serious damage to property, or avoid an adverse effect on the environment. The other relates to an event beyond your control, including natural disaster, mechanical failure, or sabotage, which could not have been reasonably foreseen or provided against.

To successfully defend a prosecution you must have acted reasonably and you must have adequately mitigated or remedied the effects of the event after it occurred.

You may also be liable for the actions of your employees or agents. Liability under the

Act can attach to those who commit the offence, and those who are seen to have responsibility for the actions of the offenders.

4.3 Requirements of the Health and Safety in Employment Act 1992

4.3.1 Responsibilities of employers

Employers must protect their employees and other people in the vicinity from hazards associated with their work. As exposure to lead in paint removal work is recognised as an occupational hazard, an employer must take all practicable steps to eliminate, isolate or minimise the "significant hazard".

Employers are required by the Act to monitor staff health and exposure to significant hazards where the hazard is minimised. They must also notify the Occupational Safety and Health Service of the Department of Labour (OSH) where occupationally induced lead poisoning is identified in any of their employees.

The Act also requires a person who employs a contractor to ensure the contractor is not harmed by hazards associated with the contracted work. As the majority of contractors will be aware of the hazards of lead-based paint, the duty is largely to ensure they select contractors who are aware of the hazard and capable of managing it effectively.

Where a property is managed on a commercial basis, the Act requires the person who controls a place of work to ensure occupants and others are not harmed by hazards arising from their management of the property.

4.3.2 OSH Guidelines

There are guidelines prepared by OSH on the Management of Lead-based Paint. The guidelines generally deal with situations where lead-based paintwork is present in occupied buildings. A companion document, *Management of Lead-based paint on Roading Structures - Guidelines* forms Section III of this report.

4.4 Requirements of the Health Act 1956

The Health Act 1956 is the main Act controlling health hazards to the general public. It identifies lead poisoning as a notifiable disease (schedule 2), which must be reported by a medical practitioner to the medical officer of health. The health protection officer or environmental health officer may inform occupants of the premises concerned of the precautions to be taken.

Lead poisoning is also a notifiable occupational disease, whereby occupational health professionals may notify OSH where occupationally induced lead poisoning is identified or suspected.

4.5 Requirements of the Hazardous Substances and New Organisms Act 1996

The purpose of the Act is stated as being to "protect the environment, and the health and safety of people and communities, by preventing or managing the adverse effects of

hazardous substances and new organisms". Parts of the Act setting up the Environmental Risk Management Authority have come into force.

The Act will eventually replace most of the present laws and regulations dealing with hazardous substances and new organisms.

The regulations to be made under the Act will focus on what performance standards are required of hazardous substances controls, but will allow flexibility in how these controls are to be met. The intent of the legislation is that the management of hazardous substances will focus on the likely effects hazardous substances will have on human health and safety and the environment in general, rather than on the end use to which the substance may be put.

Under the Act, prior approval to manufacture any hazardous substances, in a secure location, is to be obtained from the Environmental Risk Management Authority.
A "hazardous substance" is defined to include any substance with intrinsic properties such as corrosiveness and toxicity. Accordingly approval may be needed to be obtained in relation to the manufacture of paint.

When a hazardous substance is approved, a set of requirements dealing with ultimate disposal of the substance will be included. In addition to these, local authorities may apply specific requirements under the RMA.

5. SURVEY OF REGIONAL COUNCILS' RULES AND REQUIREMENTS FOR ABRASIVE BLASTING

5.1 General

On 15 October 1997 a survey letter was sent by Opus International Consultants to all Regional councils. A copy of this letter with a summary of selected responses received are attached as an Appendix to this report. Replies were received from;

- Northland Regional Council
- Auckland Regional Council
- Bay of Plenty Regional Council
- Gisborne Regional Council
- Taranaki Regional Council
- Manawatu Wanganui Regional Council
- Hawke's Bay Regional Council
- Wellington Regional Council
- Tasman Regional Council
- Marlborough Regional Council
- Canterbury Regional Council
- Otago Regional Council
- The West Coast Regional Council
- Southland Regional Council

All Regional Councils recognise that the abrasive blasting process can produce a discharge of contaminants to air. The Councils address the issues relating to abrasive blasting through regional plans, policies and resource consents.

Most regional air quality plans and policies have a section on abrasive blasting. Under the majority of regional plans, wet abrasive blasting is a permitted activity provided there are no significant discharges. In all cases dry abrasive blasting is a controlled or discretionary activity.

Some of the effects that are commonly addressed in the regional plans are:

- Long term inhalation of abrasive blasting dust where the abrasive used is sand containing high free silica which may cause lung disease and/or silicosis; and
- Dispersion of the abrasive dust being generated and the associated nuisance effects downwind.

Another issue associated with abrasive blasting is the emission of contaminants from the surface being treated, as the material from the surface being blasted may contain heavy metals. This mixture can be inhaled by workers and occupants of adjoining properties, further increasing the health risk. It can also be deposited in nearby water-ways or onto land and find its way into sediments in streams or the coastal marine area. Few regional plans and policies cover this aspect of the problem.

The regional councils directly legislate and control specific activities of abrasive blasting by issuing resource consents for these activities. In this context, any discharge to air, water or land requires a consent, unless it is explicitly authorised by regional plans.

5.2 Existing Regulations

5.2.1 Transitional District Plans and the Resource Management Act

Under Section 15(1)(c) of the Resource Management Act ("RMA"), no person may discharge any contaminant from any industrial or trade premises into air unless the discharge is expressly allowed by a rule in a Regional Plan, a resource consent, or by regulation.

Under the Fourth Schedule of Resource Management Act, discharges from abrasive blasting are to be assessed for their effects on the receiving environment. When discharged into air, particles of sand, paint or metals from the blasting operations and fumes from surface applications following blasting, become contaminants as defined in the Act.

Dry abrasive blasting was specified as a Part B process under the Clean Air Act (now repealed) and it required a licence from a local authority. Therefore, under the RMA, the activity requires a discharge permit if it is being carried out on industrial or trade premises. Similarly, wet abrasive blasting is described in the Second Schedule as a Part C process.

5.2.2 Regional Plans

Section 418 of the Act currently exempts certain of the above activities from requiring a resource consent if they did not previously require any licence or authorisation under the Clean Air Act.

Abrasive blasting activity is not classified as non-complying, discretionary, prohibited or permitted in the Transitional Regional Plan, therefore, it is known as an innominate activity, and requires a resource consent.

5.2.3 Regional Policy Statements

The Councils all have Regional Policy Statements, which set the direction for the Council's activities.

As an example, the following objectives and policies, relevant to dry blasting of bridges, taken from Canterbury Regional Council's Proposed Regional Policy Statement, are reproduced below.

"Objective 1. Maintain or improve ambient air quality so that it is not a danger to people's health and safety, and reduce the nuisance effects of low ambient air quality.

"Policy 1. Give priority to ensuring ambient air quality improvements are achieved in Christchurch and Timaru.

"Policy 1(b). Where ambient air quality standards have not been set and existing ambient air quality is higher than required to avoid adverse health effects and nuisance effects, the discharge of contaminants into air shall only be allowed where the adverse effects of the discharge are minor.

"Objective 2. Avoid, remedy or mitigate the adverse effects on people, flora and fauna, and other natural and physical resources resulting from discharges of contaminants into the air.

"Policy 3. Set standards, conditions and terms for discharges of contaminants into the air to avoid, remedy or mitigate adverse effects".

6. SURVEY OF OWNERS OF HIGHWAY STRUCTURES

All district councils were surveyed to determine their potential liability regarding lead-based paint on their highway structures. The letter attached in the Appendix was sent to each of the 73 district councils but only 50 (68%) responded to the request for information on their structures. The quality of data submitted by these councils varied from little or no knowledge of the extent of their lead paint problem, to detailed information based on actual site survey data. In order to provide meaningful quantified results the data received was classified into the following Levels of Knowledge (LOK):

A Extent of lead paint detailed in returned databases, or identified through survey investigations. Affected area (m^2) and bridge type identified.

B As for "A", but area not identified.
C Extent of lead paint not identified. Survey response details bridge construction, size and age which can be used as an indication for likely presence of lead paint.
D As for "C", but bridge age missing from survey data.
E No knowledge or records.
O No survey data returned.
X Statement received confirming that no bridges have lead paint, or only 1 or 2 bridges (details supplied) are coated with lead paint. No other data supplied.

For bridge data with LOK Category A or B, the extent of lead paint was quantified in the submitted data. For LOK category C the extent of potential lead paint was not quantified, however the year of bridge construction was provided. The potential for lead paint on these bridges was therefore based on the age of the bridge. Steel bridges built prior to the mid 1970s have been assumed to have a presence of lead primer, unless repainting records indicated otherwise.

Of the 50 survey respondents, only 51% provided data with LOK Categories A to C, or X. Data in LOK Categories D and E provides limited information such as the total number of steel bridges in a district, but not enough information to enable quantification of the number of bridges likely to be affected by the presence of lead paint.

The data provided in LOK Categories A to C was used to estimate the overall percentage of district council owned steel bridges likely to be affected by the presence of lead-based paint as 61%. The spreadsheet in the Appendix summarises the survey results. The data submitted also indicated that 25% of district council bridges contain steel elements. When this is applied to the national bridge total for local roads, a potential number of 1960 bridges (33km) may have a lead paint presence. Of these, approximately 73% will be over water-courses.

The Transit New Zealand Descriptive Inventory was used to assess the likely number of lead affected bridges in the State Highway system. This database provides information that is equivalent to LOK Category C described above. Based on this data it is estimated that 424 (12%) of Transit NZ bridges are steel. Of these, 347 (20.6km) have the potential for presence of lead paint. The proportion of these over streams or rivers could not be determined. However, based on the district council data it is likely that the majority (say 75%) cross water-courses.

In summary therefore, it is estimated that there are approximately 2300 road bridges in NZ (>50 km in total length) that have a potential to have a negative impact on public health and the environment when being repainted.

7. CONCLUSION

Investigations have confirmed that there are a significant number of roading structures with steel elements which may be coated with lead-based paint, and that amongst owners, there is wide variation in their level of knowledge as to the extent of lead-based paint on their structures.

Also confirmed was the conditions of consent imposed by Regional Council's varied widely, and that the standards required were often non-specific and not as rigorous as those required by the Australian Standard AS 4361.1-1995, and regulatory authorities both in Australia and the United States.

As there are several significant differences between the situations in those countries to that prevailing in New Zealand, their reference materials are not able to be adopted in New Zealand without significant modification or interpretation. The major difference is between the extensive and prescriptive legislation that relates to lead-paint management in those countries and the effect-based approach that is taken in New Zealand through the Resource Management Act and the Health and Safety in Employment Act.

In New Zealand, there are currently no national environmental standards, in law, that can be applied to industrial lead-paint management work. Regional Councils enforce the RMA through the requirements of Regional Plans or the conditions of resource consents. These requirements, and therefore the control of environmental risks, may vary from region to region and from project to project.

A further aim of the research project, therefore, has been to develop guidelines to manage the hazards presented by lead-based coatings on roading structures which will be applicable to the New Zealand environment, conform with NZ legislation and be able to be adopted by a range of owners, controlling authorities, specifiers, and contractors. These are contained in the following sections of this report, and it is hoped that this set of stand-alone documents will be nationally accepted, so as to reduce the adverse effects on the environment, and risks to worker and public health that may occur during maintenance painting of roading structures.

APPENDICES

1. **SURVEY LETTERS**
2. **SUMMARY OF SELECTED REGIONAL COUNCIL SURVEY RESPONSES**
3. **SUMMARY OF BRIDGE SURVEY RETURNS**
4. **MODEL STATEMENT OF POLICY**

APPENDIX 1.

SURVEY LETTERS

Proforma Survey Letter sent to all Regional Councils

15 October 1997

OPUS
INTERNATIONAL
CONSULTANTS

Re: **Transfund New Zealand Research Project: Lead-Based Paint Management Study**

We have been commissioned by Transfund New Zealand under their research programme to carry out a study on lead-based paint management on bridges and other roading structures.

There are 3525 State Highway bridges (116 km total length) and 13062 bridges on the Local Roads (219 km) in New Zealand. The State Highway system includes 27.3 km of road structures (607 bridges) which contain steel as a principal structural element. A significant proportion of these bridges will have coatings containing lead-based paint . It is considered that the percentage of local roads bridges coated with lead-based paint will be comparable to the figure for State Highway bridges, if not higher.

The research project involves assessment of the extent of the issues involved and development of environmental and safety guidelines, procedures and policies for the risk-based assessment and management of lead-based paint coatings on bridges and other roading structures in order to minimise adverse impacts on the environment and public health. The intention is to develop a set of documents, including generic contract specifications, for roading authorities and contractors, which will allow a consistent and environmentally sound approach to be adopted nationwide.

In this regard, we would like to determine your Regional Council's activities and interests in this area. Specifically, we would like to obtain information on:

existing rules and policies in Regional Plans which control the removal of lead-based paint, including removal methods such as abrasive blasting.
requirements of the Regional Council with respect to these matters. eg. Resource consent conditions and information required of any consent applications.

Please feel free to include any additional information or comments as you feel fit. If you have any queries regarding the information being requested, please feel free to contact myself or Peter Dawson at Opus International Consultants, Environmental Division, Wellington Office or by e-mail. It is intended that representatives of the Regional Councils will have opportunities to have input into the project at various stages, by way of peer review.
Our e-mails are: Gnana.Bharathy@opus.co.nz Peter.Dawson@opus.co.nz

Yours sincerely
for *Opus International Consultants*
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Formerly Works
Consultancy
Services Limited

Proforma Survey Letter sent to all Territorial Local Authorities

18 December 1997

OPUS
INTERNATIONAL CONSULTANTS

re: Transfund New Zealand Research Project: Lead-Based Paint Management Study

Greetings of the Season !!!

As part of Transfund New Zealand's research programme, we have been commissioned to carry out a study into lead-based paint management on bridges and other roading structures.

We know from published statistics that there are some 3525 State Highway bridges (116 km total length) and 13062 Local Roads bridges (219 km) in New Zealand. The State Highway system includes 27.3 km of road structures (607 bridges) which contain steel as a principal structural element. A significant proportion of these bridges will have coatings containing lead-based paint. It is considered that the percentage of local road bridges coated with lead-based paint will be comparable to the figure for State Highway bridges, if not higher.

The research project involves an assessment of the issues involved and the development of environmental and safety guidelines, procedures and policies for the risk-based assessment and management of lead-based paint coatings on bridges and other roading structures, in order to minimise adverse impacts on the environment and public health. The intention is to develop a set of documents, including generic contract specifications, for roading authorities and contractors, which will allow a consistent and environmentally sound approach to be adopted nationwide. The project is also expected to facilitate the application and assessment process for resource consents for project work, by providing standard project compliance conditions which are nationally acceptable to Regional Councils, Ministry for the Environment and OSH.

In this regard, we first need to establish the magnitude of the problem nationwide including the extent to which your Council is affected by this issue. Specifically, we need your assistance to obtain whatever information is available on:

- An inventory of your Council's bridges and other related roading structures, that include significant amounts of painted steel. This may include :
  - Geographical location of the structure
  - Type of structure and year of construction
  - Key dimensions of the structure, extent of steel components (eg beams, trusses, handrails)
  - Status of knowledge of presence of lead paint (eg definite/probable/possible/doubtful/nil or unknown)

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- Information on their surroundings. This may include :
  - Area plan, coordinates or route distance.
  - Details of the environment including proximity to streams, rivers or other water bodies
  - Details of adjacent land use (urban / rural) including distance to neighbouring properties (could be covered by area plan) and other relevant activities in the area (eg. proximity to schools, market gardens etc) that could be affected by maintenance of lead-based coatings

Please feel free to include any additional information or comments as you feel appropriate. If you have any queries regarding the information being requested, please feel free to contact myself or Dr. Peter Dawson at Opus International Consultants, Environmental Division, Wellington Office.

It is intended that representatives of Local Authorities will have opportunities to have input into the project at various stages, by way of peer review.

Yours sincerely
for *Opus International Consultants*
Environmental Division

Gnana Bharathy
Environmental Engineer

APPENDIX 2.

SUMMARY OF SELECTED REGIONAL COUNCIL SURVEY RESPONSES

SUMMARY OF SELECTED REGIONAL COUNCIL SURVEY RESPONSES

Auckland Regional Council

The Auckland Regional Council reports that currently the Resource Quality section of the Council is drafting a pollution facts sheet which, while not aimed specifically at lead paint, covers water blasting and the need to contain as much of the effluent as possible. This type of information is distributed to industry to outline their requirements under the Resource Management Act and the options available to meet these requirements and protect the environment.

The Auckland Regional Council has completed a number of consents which involved paint removal however none of these consents covered lead-based paints. These include 1 pipeline, 3 bridges (in one consent) and the Bean Rock lighthouse. With all of these some form of containment was required along with filtering using "trampoline" material. Reportedly, this method of containment has proved to be successful because:

- The hole size is favourable compared to paint particle size analysis (such as used for the Harbour Bridge).
- The "trampoline" material is also strong, durable, washable and reusable.
- Such a method is easy to monitor by collecting the paint flakes from the filter and comparing them with the estimated quantity of paint on the bridge

It is also reported that once the contractors got used to this type of method of collecting paint flakes, and realised the amount of paint it was collecting, they have included this in their regular work procedure.

Wet blasting currently requires a resource consent from the Council due to spray and filtered discharge. Dry blasting requires an air consent from the Territorial Local Authority with conditions added by the Regional Council with regard to contaminated material falling into the water.

At this point, there is no regional plan for the Auckland region dealing with discharges to air (although it is proposed to develop such a plan in the near future). However, there are Policies and Methods (reproduced below) for managing discharges to air in the Proposed Auckland Regional Policy Statement.

Until a regional air quality plan becomes operational, the provisions of Sections 15 and 418 of the Act apply. These effectively default to the provisions of the Second Schedule of the Clean Air Act in determining which activities require an air discharge permit. Dry abrasive blasting is described in these schedules as a Part B process.

In the Auckland region, responsibility for administering these Part B processes has been delegated to the territorial authorities and any operator undertaking dry abrasive blasting requires an air discharge permit from the relevant territorial authority.

Similarly, wet abrasive blasting is described in the Second Schedule as a Part C process. This requires a resource consent subject to applicable local authority bylaws. The only territorial authorities with appropriate bylaws in the Auckland region are Manukau City Council and Waitakere City Council. Therefore, any wet abrasive blasting carried out in these areas would require an air discharge permit.

Extracts from the Auckland Regional Council Regional Policy Statement:

"10.4.7 Policies: Industrial emissions

1. Operators of industrial and trade premises shall prevent or minimise adverse effects resulting from discharge of contaminants to air, while complying with criteria for such discharges specified in regional or district plans, regulations or conditions of resource consents.

2. Sufficient monitoring of industrial discharges shall he undertaken to demonstrate compliance with regional rules, regulations or conditions of resource consents.

3. Industrial emission testing shall be carried out according to standard test methods as specified in regional or district plans, regulations or conditions of resource consents.

4. Adequate separation distances shall be maintained between industrial or trade premises that discharge, or have the potential to discharge, noxious, dangerous, offensive or objectionable contaminants to air and adjacent land uses.

5. Odour standards and standard methods for the measurement of odour shall be established.

"10.4.8 Methods

1. The ARC will introduce provisions in a regional plan to give effect to these Policies.
2. TLAs will make adequate provision in district plans to give effect to these Policies.
3. The ARC will take a strong advocacy role in requesting central government to establish as a matter of urgency:

i) National emission standards and national guidelines for design ground level concentrations for the discharge of contaminants to air from specific industrial or trade premises;
ii) National guidelines for standard methods for sampling discharges of contaminants (including odorous contaminants) to air from industrial or trade premises;
iii) National guidelines for standard methods for determination of industrial stack heights; and
iv) Source performance criteria for the discharge of contaminants to air from industrial or trade premises.

"10.4.9 Reasons

With respect to method 10.4.8-1 the Air Quality Regional Plan may include:

- Emission limits and design ground level concentrations for industrial discharges;

- Standard methods for sampling discharges and determining stack heights;
- Criteria for the classification of industrial or trade premises as permitted, controlled, discretionary, non-complying, or prohibited activities;
- Buffer distances; and
- Source performance criteria for industrial discharges.

"Contaminants discharged from industrial or trade premises can cause adverse effects because of toxicity or odour. It is not possible to characterise the individual contaminants of odorous emissions from some premises (e.g., printing plants). Such emissions must be assessed in terms of the collective odour units discharged. However, New Zealand has no established methods of odour measurement nor odour standards. Without these, it is difficult to ensure that there will be no adverse effects from the discharges.

"Methods of measurement and standards for odour are tools that are or will be required by many of the regional councils. The ARC therefore considers that central government should formulate odour standards and methods of measurement of odour in consultation with regional councils, TAs and other affected parties".

Environment Bay of Plenty

Environment Bay of Plenty's Regional Air Plan was proposed on 30 September 1997. This requires that mobile abrasive blasting obtain a consent which will have specific criteria on the type of blasting used and the dust controls required. The water discharge issues are yet not covered by a plan so the default requirement is the Resource Management Act s.15, which requires a consent for discharges of contaminants into water.

Environment Bay of Plenty reported on the abrasive blasting application for Tranz Rail involving lead-based paint.

In the case of abrasive blasting of the rail bridge, the option used was vacuum blasting where as much of dust as possible is extracted at the nozzle by a concentric arrangement, so the grit and blasted material do not have a chance to escape. This method is particularly useful on flat surfaces but does not do so well where the nozzle has to go over rivets or other obstructions. At these points electric wire brushes etc were used. The whole area was screened by tarpaulins and shade cloth, except for the top because trains were still using the bridge.

Environment Bay of Plenty has issued consents to carry out water blasting road bridges where the activity was related to cleaning and pre-painting maintenance. Water blasting the bridges generally involved cleaning debris off the bridge and lifting loose paint from the rails. The concerns there were sediment and paint getting into the river so a screen was required, to reduce the solids discharge. There was also a requirement to avoid working in the stream. As these maintenance works were generally each for a short period, several bridges were covered in one consent.

Gisborne District Council

Proposed Regional Air Quality Management Plan for Gisborne has a section on Abrasive Blasting which details policies and rules for blasting bridges.

The issues discussed in the proposed plan were:

Health risk to workers and occupants living close to stationary facilities due to long term inhalation of sand containing free silica;

Emission of toxic materials from the surfaces being blasted such as lead, copper, mercury, zinc, arsenic or cadmium that would combine with the silica dust, and inhalation of this contaminated dust by workers and occupants of adjoining properties;

Deposition of dust in nearby water ways or onto land and finding its way into sediments in streams or the coastal marine area; and

Dispersion of abrasive dust and the nuisance effects downwind.

Alternatives:

Use of alternative abrasive media such as manufactured abrasives which produce less dust and therefore have reduced environmental effects.

The use of properly designed booths as the only way to avoid or significantly minimise the discharge of contaminants to air - the abrasives are then able to be recovered and reused in these booths thus reducing cost of abrasives. The capital cost of the booths makes it difficult for small operators to warrant that expense.

Wet blasting does not generate significant discharges of contaminants to air as does dry blasting. Wet abrasive blasting or high pressure water blasting with sand injection are appropriate alternatives but are less cost effective than dry abrasive blasting. Using large volumes of water will require adequate water pollution control measures.

"The following is an excerpt from the section on Abrasive Blasting taken from the Proposed Regional Air Quality Management Plan for Gisborne (Section 10.4).

"The Abrasive Blasting Regulations contain two fundamental mitigation measures which would reduce the environmental (including health) effects significantly:

a) That dry sand blasting is only carried out in a properly designed blasting facility; and
b) That only silica free sand or sand with low free silica is used when a sand abrasive is required.

"Where full containment is not practical, partial containment by controlling the direction of dust movement could minimise the adverse effect of the dust. Similarly, bunding the working area when working on location near waterways or the coast to collect most of the deposited dust and therefore enable it to be removed, will also minimise adverse effects.

"There are a number of different brands of commercially manufactured abrasives available in New Zealand and although they are generally more expensive than sand, they do have other attributes, such as being less harmful to one's health and being able to reuse the abrasive to balance that extra expense.

"There are also alternative methods to dry abrasive blasting which could achieve the same or similar results, such as wet abrasive blasting. However this alternative is slower, and when used on metal work, may require either a quick dry blast to dry off or the use of a rust inhibitor to prevent rust.

"The implementation, or lack of implementation, of some of these measures could have significant financial and environmental implications. The benefits and costs to the applicant and the community of any operation must be carefully assessed.

"10.4.1. Policies
Dry blasting facilities shall not use sand with a content of free silica above 5% unless it can be demonstrated that the environment will be adequately protected from the adverse effects of free silica particulate.

"Adequate measures of protection includes:

a) Containing silica residues on site;
b) Protecting operators and other people from exposure to silica; and
c) Restricting blasting to times, locations or meteorological conditions when particulate are most likely to quickly settle, or in any case will avoid causing adverse effects.

"10.4.3. Rule 14: Discretionary Activities - Dry Abrasive Blasting Outdoors
Explanation
All wet abrasive blasting processes are permitted on any premises, whether stationary or mobile, because the dust potential is considered to be minor upon compliance with the stated conditions.

"Dry abrasive blasting is permitted under Rule 13 because the conditions in the rule will ensure the particulate control equipment will ensure that particulate concentrations are at an acceptable level in discharges.

"Dry abrasive blasting in the open air is not covered by either Rule 12 or 13 and therefore is a discretionary activity. This is due to the high potential for significant adverse effects associated with many blasting mediums and attrition materials.

"The policies supporting these rules establish largely descriptive standards for basing assessments of the various activities on.

"Policy 10.4.1.A. allows for the use of silica based dry abrasive sanding subject to measures being taken to restrict likely exposure to silica residues. The policy is necessary to ensure that the 5% threshold is adhered to and that (principally human) adverse effects do not occur.

"Policy 10.4.1.B. This policy provides for consideration in the resource consent process of dry blasting operating methods and Procedures as means of avoiding adverse effects of dry blasting in the open."

Hawke's Bay Regional Council

Rules 15 to 17 (pages 43 - 45) in the Regional Air Plan cover the requirements for abrasive blasting. Under Rule 17 a consent is required where dry abrasive blasting occurs in the open, regardless of the type of surface to be blasted.

The Council has issued consents for the blasting bridges coated in lead-based paint. The Regional Council reports the following difficulties pertaining to managing lead paint in bridges:

- "A lack of national standards for acceptable lead levels in the environment as a result of this type of activity (as opposed to lead in the air from vehicle emissions, for example);

- Previously, the lack of a national code of practical standard for lead-based paint removal. The "Guide to lead paint management. Part 1: Industrial applications. AS 4361.1-1995" has helped to fill this gap;

- The lack of knowledge of employers (such as Tranz Rail and Transit NZ), who are tendering out paint removal jobs, as to the problems associated with lead-based paints; and

- The lack of knowledge of the firms contracted to do the jobs, and their staff who are directly responsible for carrying out the work, as to dust emission controls etc."

Taranaki District Council

As with elsewhere in the country, abrasive blasting is a discretionary activity in the Taranaki District Council. The special conditions of consent that accompany consents relating to paint removal by abrasive blasting are elaborate and cover mobile, permanent and yard operations. These conditions are reproduced below:

1) THAT nothing in this consent removes from the consent holder the obligations, liabilities, duties and/ or responsibilities specified in Section 17 of the Resource Management Act 1991 or in any other part of that Act.

2) THAT the consent holder shall at all times adopt the best practicable option to prevent or minimise any adverse effects on the environment.

3) THAT all abrasive blasting shall in general be carried out in a booth, shed or other effectively enclosed facility on the consent holders site.

4) THAT, as far as is practicable, work areas and surrounding areas shall be cleared of accumulations of sand and any other blasted material at the end of each blasting session and by the end of each working day.

5) THAT sand used for dry blasting must contain less then 5% by dry weight free silica and less than 2% by dry weight dust able to pass a 0.15 mm sieve.

6) THAT all abrasive blasting is to be conducted with regard to wind direction and wind strength, such that off-site emissions are kept to a practicable minimum.

7) THAT dry sandblasting shall be used in yard and mobile operations only when specified by a client. High pressure water blasting, wet sand blasting, grit blasting, vacuum blasting or an equivalent process must be used when practicable.

8) THAT it shall be the responsibility of the consent holder to ensure that all operators of abrasive blasting equipment understand and comply with the above conditions prior to the commencement of any work for which this consent is required.

9) THAT if material to be dislodged or removed or applied during any abrasive blasting or surface coating process contains, or is thought to contain, toxic substances such as lead, arsenic, chromium, or zinc, then a Health Protection Officer from the Health Protection Unit of Taranaki Healthcare Limited shall be approached for advice prior to such process being commenced.

Mobile Operations

10) THAT except as specified below, the consent holder shall not conduct abrasive blasting within 200 metres of any dwelling place or property boundary or within 100 metres of any natural watercourse.

11) THAT abrasive blasting or surface coating within 200 metres of dwelling places or property boundaries may take place only when the prior written permission of all affected property owners and occupants has been received by the consent holder.

12) THAT where abrasive blasting or surface coating is to take place within 100 metres of a natural watercourse, the General Manager, Taranaki Regional Council, shall be notified prior to any operation commencing. The General Manager, Taranaki Regional Council, may require additional measures to prevent or minimise or

mitigate any potential for adverse environmental impacts. It shall be the responsibility of the consent holder to ascertain such measures prior to commencing an abrasive blasting operation, and to comply with any and all such measures at all times.

13) THAT abrasive blasting within residential or urban areas requires prior notification to the relevant District Council.

14) THAT all items or premises to be blasted shall be screened by means or (sic) covers, tarpaulins, cladding, or other means, as completely as practicable, to contain dust emissions and depositions and to restrict the spread of all blasting debris.

Operations conducted within permanent facilities

15) THAT all emissions from all abrasive blasting, surface preparation or surface coating operations and all other associated emissions from abrasive blasting shall be contained and treated, as far as is practicable, prior to discharge beyond any operations enclosure. All gas streams ventilated or otherwise emitted from an enclosure shall be treated to a degrees Celsius and dry gas basis, at any time.

16) THAT the final discharge after cleaning shall not contain lead or lead components at a concentration greater than 0.7 mg per cubic metre as Pb, chromium or chromium compounds at a concentration of 1.5 mg per cubic metre as Cr, or zinc or zinc compounds at a concentration of 15 mg per cubic metre as Zn [corrected to 0 degrees Celsius and dry gas), at any time.

Yard operations

17) THAT from time to time, the consent holder may receive for abrasive blasting or other surface treatment, an item that, because of its bulk, weight, or other factor, cannot be treated inside the appropriate facility. Such yard operations shall not be permitted on a frequent or continual basis, other than in exceptional circumstances.

18) THAT prior to commencing any yard operation as described (in the special condition above), the consent holder shall specifically notify the General Manager, Taranaki Regional Council.

19) THAT all items which cannot be treated within properly enclosed facilities shall be screened by means of covers, tarpaulins, cladding or other means, as completely as practicable, to contain dust emissions and depositions and to restrict the spread of all blasting debris.

20) THAT the Taranaki Regional Council may review any or all of the conditions of this consent by giving notice of review during the month of June 1999 for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this consent.

Manawatu - Wanganui Regional Council

Maintenance activities involving abrasive blasting of fixed structures or bridges using mobile plant in the beds of rivers and lakes will also need to comply with RAP Rule 11 of the Proposed Regional Air Plan for Manawatu-Wanganui. This Plan controls the discharge of contaminants to air. The Proposed Manawatu-Wanganui Resource Management Plan has a section on abrasive blasting operations which covers standard conditions. The Plan provides for mobile blasting as a permitted activity, and permanent or fixed blasting as a controlled activity. The conditions in this rule are consistent with those that have been included as conditions on discharge permits for this activity. This includes the requirement to ensure that all practicable steps will be taken to avoid deposition of blasting material on a river bank and in rivers, in particular, by using screens, covers, tarpaulins, claddings or other such means.

The only permitted discharge to water are stormwater. All other discharges to water require resource consents. Any discharge to water that occurs as a result of abrasive blasting operations therefore requires a resource consent from the Regional Council unless allowed by a regional plan. Relevant regional plans are the Proposed Manawatu Catchment Water Quality Regional Plan which addresses discharges to water in the Manawatu Catchment and the review of the Transitional Regional Plan which address discharges to water elsewhere in the Region.

Any maintenance (including abrasive blasting) of bridges and fixed structures over, or in the beds of rivers must comply with rules addressing maintenance in the Proposed Regional Plan for Beds, Rivers, Lakes and Associated Activities.

Marlborough District Council

The Marlborough District Council is a Unitary Authority having the powers and functions of both a local territorial authority and a regional council. Accordingly, it has developed combined coastal, regional and district plans for the area under its jurisdiction.

The Proposed Marlborough Sounds Resource Management Plan covers generally the Marlborough Sounds and the hinterland draining into the Sounds, including the Pelorus catchment. The remainder of the Marlborough District is contained within the Wairau/Awatere Resource Management Plan. This latter Plan was notified as a 'Proposed Plan' on 6 November 1997.

The Proposed Marlborough Sounds Resource Management Plan has just completed Hearings and is about to have decisions released. This has a section on abrasive blasting operations which covers standard conditions. The Plan provides for mobile blasting as a permitted activity and permanent or fixed blasting as a controlled activity.

Tasman District Council

The Tasman District Council's current practice has been to require consents for abrasive blasting of bridges.

The Proposed Tasman Resource Management Plan requires that any permitted activity does not emit dust or odour causing a nuisance in a residential zone. Although the Plan is not designed to take into account issues of lead contamination from abrasive blasting of bridges, it has generic clauses covering such issues. There do not seem to be any transitional rules, which may have applied.

Tasman draft air management rules, which have been released for public comments in 1996, allow for abrasive blasting from mobile sources to be permitted provided that there is no discharge to water. This would effectively require resource consents for abrasive blasting of bridges unless the process is entirely contained.

In the past, consents for painting bridges incorporated conditions to mitigate the adverse effects. The key aspects of the conditions, which are consistent with those placed by other Councils, are as follows:

> "Sand blasting be restricted to a quick overall search blast with additional spot blasting where corrosion is advanced.
>
> "All reasonable effort be made to minimise unnecessary discharges of paint flakes to the environment. Where practicable paint flakes shall be collected and disposed in an appropriate manner, such as to an approved landfill."

There is provision to review the conditions of consent for the purposes of:

- *"Dealing with any adverse effect on the environment arising from the exercise of the application;*
- *Requiring the applicant to adopt the best practicable option to remove or reduce any adverse effect on the environment; and*
- *Reviewing the monitoring requirements placed on this consent."*

It also addresses issues relating to the timing of work, erection of appropriate signs, and considerations for meteorological conditions. Consultation with affected parties is also required.

Canterbury Regional Council

Canterbury Regional Council's Air Plan is underway and has recently been released for public consultation. The region, and in particular Christchurch City, is prone to air pollution problems due to the occurrence of inversion layers in the atmosphere which trap the pollutants. Therefore, the Regional Council lays down stringent rules for management of air quality. A Regional Council Investigating Officer reported: "Several

resource consents have been granted for mobile dry abrasive blasting with strict conditions imposed to prevent the discharges from causing significant adverse effects on the environment, even in the most sensitive receiving environments. The consents should be closely monitored to ensure compliance with the conditions."

Dry abrasive blasting requires a discharge permit if it is being carried out on an industrial or trade premises.

Wet abrasive blasting and spray painting were classified as Part C processes under the Clean Air Act and these activities did not require licensing by the local authority except in Christchurch City. If the applicant does not indicate the desire to operate within Christchurch City, the activity will be permitted.

Canterbury Regional Council (like many other Councils) considers that it is most effective to treat the application as being for a region-wide resource consent rather than on a site by site basis.

West Coast Regional Council

The West Coast Regional Council had no operative regional plans in place which control the removal of lead-based paint, including removal methods such as abrasive blasting. The two plans that will deal with these activities are both currently at draft stage. These are the Regional Plan to Control the Discharge of Contaminants to Land, and the Regional Air Quality Management Plan. The aim was to notify the Discharge of Contaminants to Land Plan in November/December 1997, and the Air Quality Management Plan in mid-1998.

Otago Regional Council

The Otago Regional Council has a "Transitional Regional Plan Change 1: Air Discharges" which makes dry abrasive blasting a discretionary activity.

The Council have issued consents containing general conditions of consent for all fixed and mobile operators in the region. Where a particular job can not be completed within the confines of the general conditions a specific consent is required.

There are no plans developed yet with regard to water or land so any discharge to these requires a consent. Their attitude to applications for consents to discharge lead-based paint to either land or water would be to refuse to grant the consent as any consent issued would be with the condition that there be no discharge. Their attitude to these operations is that they only be done in such a manner that no discharges to land or water occur.

They have issued some consents for discharge to air for the blasting of railway bridges. These jobs could not fall within the conditions of the general consents issued to mobile

blasters because of their proximity to the coast. The conditions on these consents required enclosure of the job of an equivalent standard to that required in the Australian Standard for lead paint management AS 4361.1 1995.

Southland Regional Council

Southland Regional Council's proposed Regional Air Quality Plan requires operators of dry abrasive blasting processes to obtain an air discharge permit [Rule 5.5.2 (15)]

The permit will contain conditions to address the capture and disposal of spent materials containing lead. Conditions will be set on a case by case basis. Typical issues addressed by conditions of consent are given below:

> "Generally, suitable screening of the structure will be required during the blasting operation, (including underneath the structure) to contain the material removed.
>
> "Disposal of the material will be to an approved landfill.
>
> "Blasting will be restricted to relatively low wind speeds, and the operator will be required to advise the Regional and District Councils, in advance, of what structure it is proposed to remove the paint from, and the day or days on which the blasting will occur.
>
> "The operator will also be required to notify any residents within 200 metres of where the blasting is to occur. Wet abrasive blasting would be preferred, if the spent materials could be suitably contained."

APPENDIX 3.

SUMMARY OF BRIDGE SURVEY RESULTS

Transfund New Zealand Research Project: **Lead-Based Paint Management Study**

Summary of Bridge Survey Returns

Date Prepared: 15 June 1998

Comments:

Number of District Councils approached	73	
Number of responses received	50	68% of total
Responses received with level of knowledge (LOK) A to C, or X	37	51% of total

Findings:

1. Percentage of bridges affected by lead-based paint (LBP):

LOK A to C:

Out of	782	steel bridges	61% have potential LBP problems based on LOK A to C.
Out of	531	steel handrails	66% have potential LBP problems based on LOK A to C.
73%	of affected bridges are over water-courses.		
The	61%	of bridges affected by LBP account for	9.939 km of bridge.

Transit NZ:

Out of	424	steel bridges	82% have potential LBP problems based on LOK C.
Out of	880	steel handrails	72% have potential LBP problems based on LOK C.
?	of affected bridges are over water-courses.		
The	82%	of bridges affected by LBP account for	20.64 km of bridge.

2. Percentage of steel bridges:

District Councils:

Based on the complete survey responses received approximately			25%	of DC bridges are steel.	
Statistical records show that there are		13062	bridges (	219	km) on the local roads.
Using the proportion calculated for LOK a to C above, this gives:					
1960	bridges (	33	km) of steel bridges in the local road network that may be coated with lead-based paint.		

Transit NZ:

Statistical records show that there are		3525	bridges (	116	km) on State Highways.
Based on the TNZ Descriptive Inventory approx.			12%	of State Highway bridges are steel.	
347	State Highway bridges (	20.64	km) may be coated with lead-based paint.		

Transfund New Zealand Research Project: **Lead-Based Paint Management Study.**

Survey Feedback Date Prepared: 15 June 1998

	Number of Bridges									
Organisation:	Total Bridges:	Total Length km	Steel (whole/part) Bridges:	with Steel Hand/Guard rails:	Steel Bridges with Potential Lead Paint Problem:	Potential Length of Affected Bridges (km)	with Potential Lead Painted Handrails:	Area of Affected Steel (m2)	Level of Knowledge:	Lead Painted Steel bridges over water (excl rails)
Auckland City Council									O	
Ashburton District Council	167	3.6	6	49	6	0.05	30	-	C	6
Banks Peninsula District Council	170	2.2	59	-	-	-	-	-	E	-
Buller District Council									E	
Carterton District Council	-	-	-	-	0	0	0	-	X	
Central Hawkes Bay D. Council									O	
Central Otago District Council				-	0	0	0	-	X	-
Chatham Islands County Council									O	
Christchurch City Council	129	2.5	16	-	7	0.12	29	426	A	-
Clutha District Council									O	
Dunedin City Council									E	
Far North District Council	747	?	239	-	-	-	-	-	D	-
Franklin District Council	-	-	14	-	13	0.16	0	-	C	11
Gisborne District Council	-	-	220	-	120	-	-	-	C/D	-
Gore District Council									O	
Grey District Council		-	38	-	-	-	-	-	D	-
Hamilton City Council									O	
Hastings District Council									O	
Hauraki District Council									O	
Horowhenua District Council	-	-	7	3	7	0.13	3	-	C	7
Hurunui District Council									O	
Hutt City Council	64	-	4	4	3	0.3	3	-	C	0
Invercargill City Council	63	-	1	0	1	0.02	0	-	X	0
Kaikoura District Council	38	-	-	-	-	-	-	-	E	
Kaipara District Council	330	-	74	-	19	0.29	-	-	E	19
Kapiti Coast District Council	35	0.79	11	13	0	0	13	-	A	0
Kawerau District Council	-	-	1	1	1	0.04	1	-	X	
Mackenzie District Council									O	
Manawatu District Council									O	
Manukau City Council	-	-	1	37	0	0	-	-	D	0

	Number of Bridges									
Organisation:	Total Bridges:	Total Length km	Steel (whole/part) Bridges:	with Steel Hand/Guard rails:	Steel Bridges with Potential Lead Paint Problem:	Potential Length of Affected Bridges (km)	with Potential Lead Painted Handrails:	Area of Affected Steel (m2)	Level of Knowledge:	Lead Painted Steel bridges over water (excl rails)
Marlborough District Council	-	-	106	-	-	-	-	-	D	-
Masterton District Council	-	-	34	-	0	0	-	0	B	
Matamata-Piako D Council	-	-	16	9	10	0.1	5	-	C	10
Napier City Council	-	-	1	6	1	0.009	4	-	C	1
Nelson City Council	-	-	4	16	4	0.15	16	-	C	4
New Plymouth D Council	277	4.5	37	73	11	0.05	51	-	C	4
North Shore District Council			2	-	0	0	-	-	X	0
Opotiki District Council	60	-	26	35	24	-	22	4056	C	24
Otorohanga District Council	147	2.15	38	-	0	0	0	0	A	0
Palmerston North City Council									O	
Papakura District Council	-	-	0	0	0	0	0	0	X	0
Porirua City Council	-	-	3	4	2	0.2	3	-	C	0
Queenstown Lakes D Council									O	
Rangitikei District Council	-	-	62	-	62	0.92	-	5503	C	62
Rodney District Council									E	
Rotorua District Council	-	-	0	38	0	0	38	-	C	0
Ruapehu District Council	-	-	-	-	61	1.72	-	-	C	-
Selwyn District Council									O	
Sth Taranaki District Council	-	-	51	-	46	1.03	-	-	C	45
Sth Waikato District Council	-	-	2	-	2	0.07	-	-	B	1
Sth Wairarapa District Council									E	
Southland District Council	233	4.6	86	179	32	0.5	65	-	B	32
Stratford District Council									O	
Tararua District Council			0	-	0	0	-	0	X	0
Tasman District Council	447	?	92	92	64	1.68	64	-	C	64
Taupo District Council	-	-	4	-	0	0	-	-	X	0
Tauranga District Council	-	-	0	-	0	0	-	-	X	0
Thames Coromandel D Council	140	-	31	2	25	0.37	1	-	C	25
Timaru District Council	248	4	78	-	36	1.41	-	-	C	-
Upper Hutt City Council	24	-	3	3	1	0.01	0	-	B	1
Waikato District Council	363	-	152	-	33	0.66	-	-	D	-
Waimakariri District Council			36						O	
Waimate District Council		-	91	5	8	0.15	4	-	B	5
Waipa District Council	78	1.89	18	-	18	0.59	-	-	C	18

	Number of Bridges									
Organisation:	Total Bridges:	Total Length km	Steel (whole/part) Bridges:	with Steel Hand/Guard rails:	Steel Bridges with Potential Lead Paint Problem:	Potential Length of Affected Bridges (km)	with Potential Lead Painted Handrails:	Area of Affected Steel (m2)	Level of Knowledge:	Lead Painted Steel bridges over water (excl rails)
Wairoa District Council									O	
Waitakere City Council	55	-	5	-	-	-	-	-	D	-
Waitaki District Council									O	
Waitomo District Council	140								O	
Wanganui District Council	-	-	28	-	10	-	-	11780	A	10
Wellington City Council									O	
Western Bay of Plenty District	97	-	25	-	23	0.29	-	-	C	17
Westland District Council									O	
Whakatane District Council									O	
Whangarei District Council									O	
Transit New Zealand (Descriptive Inventory)	-	-	424	880	347	20.64	634 (TNZ 41.1km brdg)	-	C	-

Notes:

1 The number of bridges with steel guard or hand rails includes bridges with a steel superstructure.

Key To Level of Knowledge (LOK):

A Extent of lead paint detailed in returned databases or identified through survey investigations. Affected area (m2) identified and bridge type identified.
B As "A", but area not identified.
C Extent of lead paint not identified. Survey response details bridge construction, size and age which can be used as an indication for likely presense of lead paint.
D As "C", but bridge age missing from survey data.
E No knowledge or records.
O No survey data returned.
X Statement received confirming that no bridges have lead paint, or only 1 or 2 bridges (details supplied) are coated with lead paint. No other data supplied.

APPENDIX 4.

MODEL STATEMENT OF POLICY

MODEL STATEMENT OF POLICY

REMOVAL OF LEAD-BASED PAINT FROM ROADING STRUCTURES

POLICY

The removal of lead-based paint during maintenance painting can present significant risks to the environment, and may also present risks to workers and the public who come into contact with any air, soil or water that has been contaminated. To mitigate such risks, XYZ has adopted the Transfund New Zealand Research Report 115 "Lead-Based Paint Management on Roading Structures" Section III "Guidelines" and will apply it to all maintenance of their roading structures.

OBJECTIVES

The objectives of this policy are to:

1. Manage the maintenance painting of roading structures to minimise, as far as possible, any health risk to contractors, the general public and other persons who may be affected by these activities.
2. Manage the maintenance painting of roading structures to minimise, as far as possible, any detrimental effect to the environment.
3. Ensure XYZ meets its obligations under the Health and Safety in Employment Act 1992, Resource Management Act 1991, and other related statutory requirements.

IMPLEMENTATION

To implement this policy XYZ will:

1. Maintain records of what structures under its ownership are coated with lead based paints.
2. Consider all maintenance painting alternatives, taking into account the degree of environmental and public health risk associated with each alternative.
3. Obtain the necessary resource consents, or when it is the responsibility of the contractor to obtain the consents, ensure this is specified in the appropriate contract documents.
4. Ensure that the risks to the environment, public health and adjacent workers are properly assessed for the selected maintenance option and that, where necessary, an appropriate containment system is used to minimise any hazardous emissions that may otherwise discharge to the surrounding environment.
5. Identify any project requiring environmental monitoring and ensure that this is specified as required in the contract documents, and is implemented during the project.
6. Ensure that any contractor engaged in the removal of lead-based paint, submits an adequate project safety plan that includes detailed information on measures aimed at minimising employee exposure to lead, and also provides suitable evidence that employees are appropriately trained and adequately supervised.
7. Ensure that all lead contaminated material generated during a maintenance painting project is disposed of as hazardous waste in accordance with the appropriate waste management requirements of the local authority concerned.
8. Ensure that all conditions of the Resource Consent(s) are compiled with during the project.