



Environmental
Protection Authority
Te Mana Rauhi Taiao

Report to the Minister for the Environment

Monitoring the Effectiveness of the Hazardous Substances and New Organisms Act 1996

July 2012



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Executive summary

The aim of this report is to provide analysis on the effectiveness of the Hazardous Substances and New Organisms (HSNO) Act 1996 during the 2010-11 financial year. The report is divided into three sections: an overview of significant activity that occurred during the year; a case study on reassessments; and data in the HSNO indicator dataset.

The decision-making processes under HSNO operated well during 2010-11. Significant improvements were made in the hazardous substances area that enabled a reduction in processing times. There were few unusual applications, with the exception of the approval of a new vertebrate toxic agent for controlling stoats, ferrets and feral cats. The group standard provisions of the Act are being increasingly utilised, with several new group standards approved and existing ones amended to more effectively manage the risks from groups of similar substances. The year also saw the beginning of a group approach for reassessing existing hazardous substance approvals, to improve the management of risk from an entire suite of substances.

Highlights for new organisms decision-making included the approval of several new biological control agents and approval to import giant pandas into zoos. A review of 22 biocontrol agents approved for release between 2000 and 2011 found no evidence indicating that the organisms have become pests or weeds.

Work to promote or facilitate compliance with the HSNO Act controls was mostly consistent with that in previous years. In 2010-11 significant additional activities included the implementation of a new system to allow for better management of the location test certificate regime, and improvements to the Environmental Risk Management Authority (ERMA) website to allow information to be more easily accessible on how to comply with the Act. Work was also begun to improve the controls on animals held in zoos and new organisms held in other containment facilities. A review of new organism incidents and non-compliances for the period found no evidence indicating that any approved new organisms have become pests or weeds.

Although the agencies responsible for ensuring compliance with the HSNO Act were active during 2010-11 there continued to be concerns about low numbers of site inspections by the Department of Labour. There were several prosecutions under the HSNO Act in 2010-11, mostly for the illegal importation of new organisms.

Several changes were made to the legislation during the period. The HSNO Amendment Act of April 2010 led to some significant improvements in processing applications, but not all of the amendments have yet been fully implemented. Interactions between the HSNO Act and other pieces of legislation continue to be well managed.

Engagement with Iwi/Māori during 2010-11 was considerable, with several new initiatives put in place to increase participation of Māori in HSNO processes. These included the formation of a Tauranga Moana Environmental Risk Management Roopu; and publication of a guidance document for applicants undertaking a Cultural Impact Assessment. The effectiveness of these initiatives remains to be seen, however Iwi/Māori were actively involved in a number of applications during this period.

The HSNO Act continues to be effective for managing interactions on an international level, especially as a tool for achieving New Zealand's obligations under international chemical conventions, for example the Stockholm Convention on Persistent Organic Pollutants.

A case study was carried out into the use of post-reassessment monitoring requirements for hazardous substances and is presented in Part 2 of this report. The study found that the use of these controls to be most effective when they are more prescriptive, particularly where they require reporting of information to the Environmental Protection Authority (EPA). These monitoring requirements, which have been used on four hazardous substance reassessments to date, require some form of on-going monitoring of the use and/or effects of the substance, in order to see if the controls on the use of the substance are being effective in managing the risks. This is especially important where there is a high level of uncertainty and the monitoring may provide relevant new information which may provide grounds for a further review of the controls.

Data in the HSNO indicator dataset show a few significant trends, but due to problems with data validity these cannot be linked to specific HSNO interventions (or lack thereof). Significant trends include:

- an increase over the last two years in the number of compliance orders issued by enforcement agencies for breaches of hazardous substance controls
- a decrease in the number of children aged 0-4 years being hospitalised due to accidental poisoning by hazardous substances
- no human fatalities in any of the incidents reported to ERMA during 2010-11.

These indicators may be reviewed in the near future as part of a wider review of the monitoring functions of the EPA.

Introduction

This report provides a summary of work undertaken by the Environmental Protection Authority (EPA) to monitor the effectiveness of the HSNO Act. This monitoring function is set out in section 11(1)(b)(i) of the HSNO Act, which states *“The Authority may...monitor and review... the extent to which the Act reduces adverse effects on the environment or people from hazardous substances or new organisms.”*

The report covers the period from July 2010 – June 2011. Activity outside this period is included where necessary to provide further context and analysis. The report is always prepared retrospectively for the previous financial year so that a full year’s data can be collected and analysed. This approach results in the lag between the end of the financial year and the report being completed. As the Environmental Risk Management Authority (ERMA) was merged into the EPA on 1 July 2011, this report covers a period before ERMA was disestablished; therefore references to ERMA remain where appropriate.

This report is structured similarly to previous annual monitoring reports with three sections comprising an overview, an in-depth case study, and a list of indicator data. There are some slight differences from previous reports, the most significant being the inclusion of some analysis of the indicator data in Part 3.

Part 1 provides a summary of significant activities that occurred during the period, and provides some analysis on how these activities have contributed to the goals of the HSNO Act.

Part 2 is an in-depth case study of a particular topic. This year the topic is the use of post-reassessment monitoring requirements as a tool for monitoring whether or not the risks from hazardous substances are being adequately managed.

Part 3 lists data in the HSNO indicator set. These indicators have been reported since 2001 and aim to provide an indication of the performance of the HSNO Act in specific areas. Caution should be used when interpreting this data as some of the datasets are unreliable for long-term trend analysis. Comment is provided to this effect where required.

The EPA is currently reviewing its approach to carrying out its monitoring functions under the HSNO Act. This review may lead to changes to the format and frequency of future reports, and we welcome any input from users of this report on how it could better meet their needs.

Part 1: Overview of HSNO activity 2010-11

This chapter provides a summary of significant activities that occurred during the period July 2010 – June 2011, and provides some analysis on how these activities have contributed to the goals of the HSNO Act. It is not exhaustive, but rather provides a sample of activities that is intended to provide an indication of the range of activities undertaken.

1.1. Decisions and decision-making processes

Summary

The decision-making processes under HSNO operated well during 2010-11. Significant improvements were made in the hazardous substances area that enabled a reduction in processing times. There were few unusual applications, with the exception of the approval of a new vertebrate toxic agent for controlling stoats, ferrets and feral cats. The group standard provisions of the Act are being increasingly utilised, with several new group standards approved and existing ones amended to more effectively manage the risks from groups of similar substances. The year also saw the beginning of a group approach for reassessing existing hazardous substance approvals, in order to improve the management of risk from an entire suite of substances.

In the new organisms area highlights included the approval of several new biological control agents and approval to import giant pandas into zoos. A review of 22 biocontrol agents approved for release between 2000 and 2011 found no evidence indicating that the organisms have become pests or weeds.

Hazardous substances decision making

Approvals for new substances

Decisions made on applications from external parties for new substances, in order to set controls to manage the risks from their use.

PAPP approval

A significant application approved in 2010-11 was for a new vertebrate toxic agent, para-aminopropiophenone (PAPP). Vertebrate toxic agents are used in New Zealand to control introduced mammalian pests, and there are not many substances approved for this use. PAPP is intended for the control of stoats, ferrets and feral cats, predators of native birds such as kiwi. While PAPP has a high level of hazard, its risks are considered able to be effectively managed through the use of controls, for instance, limiting its use to bait stations. ERMA considered that the benefits of PAPP outweigh the risks, and it provides a valuable addition to the tools available for controlling introduced pests in New Zealand.

Improved efficiencies

During 2010-11 several changes were made to the way hazardous substance applications are processed. These changes have resulted in a significant reduction in application processing times which has allowed resources to be reallocated to other areas, such as reassessments. The median number of working days to process an application decreased from 71 days in the first quarter of the 2010-11 financial year to 65 days in the fourth quarter. Most of these changes involved reducing the amount of assessment carried out on substances containing known components used in a recognised manner. Processing times for these applications have reduced by approximately 50 percent.

Group standard approvals

Use of the group standard approval process to manage the risks from groups of substances without the need for individual approvals.

New group standards

The EPA continues to create new group standards to more effectively control the risks from groups of substances. During 2010-11 a new group standard was developed for pharmaceutical active ingredients, as the result of an application from a pharmaceutical company. Formulated human medicines are excluded from the HSNO Act, but their ingredients are not. This group standard is designed to provide an approval for all pharmaceutical ingredients, as long as they are components of approved medicines. This approach provides a more efficient and cost-effective means of approval for these substances, that allows for innovation while still managing the risks they pose.

Other group standards under development during 2010-11 cover agricultural compounds for use in special circumstances (for example: post-entry quarantine use; re-exportation for non-commercial purposes), pheromones and tattoo inks.

Amendment of existing group standards

One of the benefits of a group standard approval is the relatively simple amendment process, which effectively amends the controls for all of the substances under the group standard without the need for individual substance reassessments. These amendments may be dictated by local circumstances or international developments.

The group standards for dental products were amended after the Ministry of Health and the Dental Council proposed to change the controls around the sale of tooth-whitening products. The standards now divide these products into three categories according to the amount of hydrogen peroxide they contain. Sale and use restrictions were placed on the two highest-risk categories, including a requirement for dentist supervision. These amendments allow for the safer use of tooth-whitening products both in the home and in professional cosmetic dentistry practices. The new rules were approved on 29 June 2011 and will take effect from 29 June 2013.

The Cosmetic Products Group Standard was amended in October 2010. This group standard is annually updated to reflect changes to the European Union Cosmetics Directive, on which it was based. This amendment ensures that New Zealand requirements are in line with international best practice.

An amendment to the packaging provisions for several group standards removed the time limit on allowing certain substances to be packaged in accordance with Australian, European or US requirements. This change meant that importers could continue to import products that use these overseas packaging standards without having to modify the packaging to comply with New Zealand standards. Without this amendment, the cost of changing packaging would have been a disincentive to some importers/manufacturers who may have withdrawn their products from sale in New Zealand. It also allows domestic manufacturers to export their

products to these countries more easily. The packaging requirements in these other jurisdictions are at a sufficient level to manage the risks from the substances.

Reassessment of existing approvals

Decisions made to modify the controls or remove approvals on already approved substances to better manage the risks they pose.

Methyl bromide reassessment

The reassessment of methyl bromide was completed in November 2010. It was an extensive process, involving public hearings in five locations around the country. The use of methyl bromide as a fumigant at many ports in New Zealand has been a contentious issue, as methyl bromide is a hazardous substance used in large quantities. However, currently no practical alternative is available, so the approval was amended to include stronger controls over its use. These controls include the requirement that processes be in place within 10 years that recapture the methyl bromide gas used in fumigations in ports, instead of releasing it to the air.

LPG reassessment

Two concurrent reassessments of LPG, propane and butane were carried out in 2010. One was internally initiated, and the second was initiated by the LPG Association (LPGA). The LPGA reassessment focused on making the controls on these substances more workable, whereas the internal reassessment put in place other controls to ensure the safe use of these substances.

The combined effect of these reassessments is that LPG, propane and butane are able to be used safely by ensuring that the controls are at an appropriate level to manage the risk.

The input by industry was an important part of the process, as it ensured that the controls are set at the appropriate level to manage risk without imposing unnecessary compliance costs on the users of the substances.

Trichlorfon and quintozene reassessments

On 18 February 2011, ERMA decided to phase out approvals for the use of the organophosphate trichlorfon as a plant protection insecticide, on the basis that the risks associated with this use outweighed the benefits. The key risks of concern were those to the environment, for which it was considered that no appropriate management options were available except for discontinuation of the approvals. Continued use of trichlorfon as a veterinary medicine was approved with stricter controls, noting lack of effective alternatives for specific pests.

On 26 May 2011, ERMA revoked the approval for the fungicide quintozene with immediate effect. The reassessment was initiated after notification by a chemical company of dioxin contamination of the active ingredient. Any unused stock was required to be disposed of within three months of the date of the decision.

These reassessments will collectively contribute to a lower risk profile in the plant protection sector, while in the case of trichlorfon, allowing continued use where necessary in other applications.

New group reassessment process

The reassessment of individual substance approvals can be very time consuming, so the EPA has been developing methods for reassessing groups of substances. The move to a group reassessment approach is intended to provide greater certainty to industry and government as to the 'toolbox' of chemicals available to them in the future; and to avoid perverse outcomes where a substance that poses a greater risk, or offers fewer benefits, is left in the toolbox when use of another substance is restricted. Reassessing a suite of substances at the same time also allows for the controls to be aligned across the whole set, whether they are for a similar use or of a similar nature. The EPA is applying this approach to two key reassessments: organophosphate and carbamate insecticides used in plant protection; and biocides used in antifouling paints.

In 2010 ERMA started individual reassessments of four organophosphate insecticides (dichlorvos, acephate, methamidophos and diazinon) that were initially notified in 2010-11. After concerns raised by submitters ERMA decided to look at the broader context and broaden the reassessment to look at the approvals of up to 30 organophosphate and carbamate insecticides that share a mode of action (acetylcholinesterase inhibition) that could be used in plant protection. This is the first group reassessment to be undertaken. After extensive internal work, a call for information was issued in September 2011 that received a broad response, including feedback from industry and users. The EPA is aiming to have decisions on the reassessments made by June 2013, and lessons learned should assist in streamlining future group reassessments.

A group reassessment of 14 biocide-based antifouling paints was also initiated in 2010-11, and is currently in its early stages.

New organisms decision making

Approval of dung beetles for release

In September 2010 an application was made to ERMA by the Dung Beetle Strategy Release Group (DBSRG) to import and release 11 species of dung beetles for biological management of dung in New Zealand pastures. The DBSRG is a collaboration of representatives including farmers and interest groups, supported financially by the Ministry of Agriculture and Forestry (MAF) Sustainable Farming Fund, and scientifically by Landcare Research. The application was approved in February 2010, as it was found that the many benefits from the beetles to pasture quality outweighed any negative effects.

Biological control agent approvals

In July 2010, an application to release the wasp parasitoid *Cotesia urabae* as a biological control agent (BCA) for an insect pest, the gum leaf skeletoniser, was approved. In June 2011, two applications to release other BCAs to control pest plant species were approved. One was the release of a rust fungus, *Uromyces*

pencanus to control Chilean needle grass; the other was for two species of beetles, *Lema basicostata* and *Neolema abbreviate*, for the biological control of tradescantia. These approvals brought the total number of BCAs released or conditionally released under the HSNO Act as at 30 June 2011 to 21.

A review of BCAs approved for release between 2000 and 2011 found that of the 22 BCAs approved as at the end of December 2011, 11 have established self-sustaining populations. There is no evidence that these organisms have had significant non-target effects.

Panda zoo import application

In September 2010 Wellington Zoo, on behalf of all New Zealand zoos, was given approval to import giant pandas. This approval followed a New Zealand bid to host a breeding pair of giant pandas from China. There are many complicated issues involved in getting the bid approved, as it has to be approved by the Chinese government; however the HSNO Approval was relatively straight-forward and does not present an impediment to the process.

High Court dismisses GE Free New Zealand's appeal on GM cows, goats and sheep approval

GE-Free New Zealand's appeal against ERMA's approval of AgResearch's application to field test GM cows, goats and sheep was dismissed in the High Court on 16 December 2010, with costs awarded to ERMA and AgResearch. The Court found that ERMA did not err in law, and the judgment significantly narrows the scope of successful future appeals to the High Court. With one exception (in 2001) the Courts have dismissed all appeals against ERMA decisions.

Genetically modified pine trees

An application from the Crown Research Institute, Scion, to field test genetically modified pine trees in containment at its Rotorua campus was approved in December 2010 with strict controls, including requiring no heritable material (pollen or seed) to escape from the containment site. Scion will remove all immature reproductive structures before they are capable of producing pollen or seed. Scion will also implement a monitoring regime to ensure that any reproductive structures are detected before they mature. This application aims to investigate the development of pine trees with beneficial traits, such as herbicide resistance, to see if they would be viable as improved forestry crops to benefit New Zealand's economy. The HSNO process has ensured that any risks from the research are identified and managed.

1.2. Compliance activities

Summary

The EPA carries out a wide range of activities to promote or facilitate compliance with the HSNO Act controls. Much of this work is consistent from year to year, for example managing the Test Certification regime and providing guidance to industry, enforcement agencies and the general public. In 2010-11 significant additional activities included implementation of a new system to allow for the better management

of the location test certificate regime, and improving the ERMA website to allow information to be more easily accessible on how to comply with the Act.

In the new organisms area, work was begun to improve the controls on animals held in zoos and new organisms held in other containment facilities. A review of incidents and non-compliances for the period found no evidence indicating that any approved new organisms have become pests or weeds.

Hazardous substances compliance activities

In 2010-11, ERMA found the available data for measuring the level of industry compliance was limited and conflicting. The EPA has since carried out a Hazardous Substance Compliance Survey to address this information gap, and the results (being reported separately) confirm low levels of compliance.

For the fourth year in a row, ERMA raised concerns with Department of Labour (DoL) about their low levels of site inspections, whilst recognising that the agency was working as well as it could within limited resources.

Concerns continued to be raised with ERMA about the test certification regime. The EPA is working to ensure there is robust and credible test certification regime, although there are uncertainties regarding the future availability of test certifiers in some specialised areas.

Notification of expiring location test certificates

A system was successfully implemented for notifying location test certificate holders when their certificate is due to expire. These certificates are required for sites holding large quantities of high-risk substances, and typically have to be renewed annually. This new system will ensure that certificate holders are made aware of their obligations to avoid the situation where sites are no longer compliant by failing to hold the required test certificate.

New organisms compliance activities

In May 2011 ERMA decided that there were grounds for reassessment of all zoo animals deemed approved to be held in containment under the transitional provisions of the HSNO Act, and organisms approved for importation into containment in a zoological garden under the Act. It was found that there was significant new information available on the adverse and beneficial effects of the organisms and that there had been a significant change in their use – from public display and entertainment, to conservation and education. This information is now feeding into a review of all the organism containment standards, with the aim of creating one over-arching standard for the containment of all approved new organisms in New Zealand. This standard will provide clear guidance on the controls for the containment of different types of new organisms.

A review of incidents and non-compliances for the period found no evidence indicating that approved new organisms have become pests or weeds. The most significant incidents in the period examined had been the

escape of zoo animals and exotic butterflies from their enclosures. All escaped animals were recovered quickly after their escape was detected.

Website improvements

In early 2011 the ERMA website was given a complete revision. The website is an important vehicle for providing information on how to comply with the HSNO Act. The revision was done partly to prepare for the changeover to the EPA, but it also provided an opportunity to update the information on the website and to create a more user-friendly interface. The new website was designed to make it easier for people to find the information they are looking for, particularly on how to comply with the HSNO Act. In a user satisfaction survey, 68 percent of people responded that they could always, or usually always, access the information they wanted. This result was an improvement from the 42 percent of people who responded similarly for the previous website in 2010.

1.3. Enforcement action

Summary

The agencies responsible for ensuring compliance with the HSNO Act performed well in general during 2010-11, however there continued to be concerns about low numbers of site inspections by DoL. There were several prosecutions under the HSNO Act in 2010-11, mostly for the illegal importation of new organisms.

Hazardous substances enforcement action

Department of Labour

In 2010-11, DoL issued 127 Compliance Orders – this is half as many as the previous year. This reduction was mainly due to resourcing conflicts within the department because of the Christchurch earthquakes and the Pike River Mine disaster.

DoL has developed a HSNO Service Strategy which aims to improve inspection rates.

Ministry of Health

The Ministry of Health (MoH) developed a Hazardous Substances Action Plan for 2010-16. This plan outlines and prioritises the major areas of work that MoH will focus on to manage the health risks from exposure to hazardous substances.

The Ministry commenced one national and one regional survey during 2010-11 to determine public health risks associated with cosmetic products: one targets lipsticks, the other hair dyes. This action follows a

national product recall of a lipstick that was found to contain lead during a Ministry of Consumer Affairs surveillance programme. Other monitoring work undertaken by the MoH found good levels of compliance.

Other activities

The New Zealand Food Safety Authority (NZFSA) found traces of the organochlorine insecticide endosulfan during their 2010 Food Residues Surveillance Programme. The use of endosulfan in New Zealand was banned by ERMA in January 2009, and all unused and partially-used stock was required to be disposed of by 17 January 2010. DoL subsequently notified those still holding stocks of endosulfan that they will avoid prosecution so long as they have arranged for the chemical to be disposed of securely.

Prosecutions

The Department of Labour commenced court proceedings in 2010-11 against Chemrecovery Industries Ltd for offences under s109 (1)(e)(ii) of the HSNO Act and s39(5) of the Health and Safety in Employment (HSE) Act. The defendant was found to have 100 kg of sodium metal unsafely stored in two 50 kg drums and did not have the required test certificate. In November 2011 the defendant, after pleading guilty to the HSE charge, was found guilty under HSNO for the storage of a hazardous substance without a test certificate and was subsequently fined \$10,000.

New organisms enforcement action

MAF investigations

Several investigations were undertaken by MAF during 2010-11 for breaches of the new organism provisions of the HSNO Act.

On 9 July 2010, an Auckland man was sentenced to three months imprisonment for the illegal importation of two corn snakes. MAF took possession of the snakes in August 2009 after they were advertised for sale on TradeMe. The man pleaded guilty to two charges, one under the HSNO Act for knowingly importing a new organism, and one under the Biosecurity Act for the possession of unauthorised goods.

On 29 July 2010, two horticulture companies were sentenced for the illegal importation and distribution of the predatory mirid bug, *Macrolophus pygmaeus*. The bug is commercially available overseas for use as a biological control agent in glasshouse production. The two companies worked together to illegally import and propagate the bug, which was then sold for whitefly control in commercial glasshouses. Great Lake Tomatoes was fined \$30,000 and Zonda Resources fined \$10,000.

In March 2011, a live jungle carpet python was seized from a property in Fielding, Manawatu. On 8 September 2011, the smuggler was sentenced to four months in prison for offences under the Biosecurity and HSNO Acts.

1.4. Legislative developments

Deeming species to be “not new” organisms

The New Zealand Institute for Plant and Food Research proposed the removal of the new organism status of six established horticultural pests through regulation. These organisms were:

- Tomato potato psyllid (TPP) (*Bactericera cockerelli*)
- *Candidatus Liberibacter solanacearum*
- Australian citrus whitefly (*Orchamoplatus citri*)
- Varroa mite (*Varroa destructor*)
- Lettuce aphid (*Nasonovia ribisnigri*)
- Eastern flower thrips (*Frankliniella intonsa*)

These are new organisms under the HSNO Act as they arrived in New Zealand after 29 July 1998.

Removing this ‘new’ status allows them to be used for research without having to gain approval under the HSNO Act. This is important for New Zealand’s horticulture industry, as it allows for the development of new pest control options that could significantly affect the economic value of those crops. The organisms were made not new by regulation amendment in September 2011.

Impact of the HSNO Amendment Act 2010

In April 2010 a bill was passed to introduce a suite of amendments to the HSNO Act. These amendments covered a range of areas, some involving minor corrections and clarifications, and others introducing more significant changes, some of which are discussed below.

A significant impact of the amendment Act has been from the various changes to delegations and notification requirements, which have led to a significant reduction in processing times for applications (see *Improved efficiencies*, page 10).

One amendment allows test certifiers to issue conditional location test certificates. These are test certificates issued for a hazardous substance location that is not compliant but where the non-compliance is “minor and technical in nature”. This allows for sites to continue to legally operate while they rectify the non-compliance. ERMA released guidance on the circumstances where a conditional location test certificate should be issued and the duration of the test certificate. This provision is now being utilised, but uptake by test certifiers has been slow, with only five conditional certificates issued as at 30 June 2011.

Two new rapid assessment approval paths for new organisms were created - rapid assessment for release with controls, and the rapid assessment for importing, developing and field testing of low risk non-GM new organisms in containment. In 2010-11 there were no applications that used these new pathways.

Some of the 2010 amendments are still in the process of being implemented so their impact cannot be commented on here.

Forms regulations

In September 2010 the Hazardous Substances and New Organisms (New Organisms Forms and Information Requirements) Regulations were amended to remove the requirement to use prescribed forms when submitting an application for a new organism approval. Prescribed forms are set out by regulation and therefore not easily updated. The use of these forms was superseded by an amendment to the Act in 2000 that permitted the Authority to approve and revise application forms as necessary. However as the regulations were not also amended at the same time, this left a discrepancy which meant that to comply with the prescribed form, information had to be provided which was over and above the information requested in the approved application form.

An example of the impact of this was an application for GM viral research by the University of Otago that was required by the prescribed form to include a 900-page organism and modification description. Such organism descriptions limit the research that can take place. After the regulation was amended in 2010, the applicant re-applied and, in line with the approved form, was able to provide more concise information regarding the organism description. This meant that the approval allowed for the dynamic nature of the research while still mitigating the risk.

Interface with other legislation

A memorandum of understanding (MoU) was signed on 21 December 2010 between MAF and DOC on the management of three species of sea snakes. This MoU recognises sea snakes as a naturally occurring component of our marine fauna rather than new or unwanted organisms requiring an incursion response. The species concerned include yellow bellied sea snake (*Pelamis platurus*), banded sea krait (*Laticauda colubrina*), and Saint Girons' sea krait (*Laticauda saintgironsi*). The MoU provides a management option to address the uncertainty of the new organism status of these species and provides for DOC to manage them under the Conservation Act (1987).

1.5. Māori engagement

There were several significant developments in 2010-11 that aimed to improve Māori engagement with HSNO Act processes.

In 2010 ERMA published a best practice guideline entitled *Tangata Whenua Effects Assessment – a roadmap for undertaking a Cultural Impact Assessment under HSNO 1996*. This document provides guidance for applicants to determine the effects of their application on Tangata Whenua and their culture and

values. It focuses on developing an ongoing relationship with Tangata Whenua in order to deal with any concerns raised. It is intended that this policy will improve the flow of information between applicants, Māori and the EPA to improve decision-making on hazardous substance and new organism approvals. The roadmap is to be trialled in the 2011-12 year.

In September 2010 a Tauranga Moana Environmental Risk Management Roopu was launched during a hui in Tauranga Moana. Named *Kia Hiwa Ngā Tuku*, the Roopu provides advice and information on HSNO processes to iwi, hapū and whānau. This advice will allow for important engagement in order to promote positive outcomes for Māori.

Two hui of the Māori National Network were also held to inform and develop capability amongst its members – primarily iwi/Māori resource and environmental managers. The first, held in October 2012 in collaboration with Te Rūnanga o Ngāti Awa, focussed on the interface between technology and tikanga. The hui centred around the impact of pentachlorophenol (PCP) and dioxin on the physical, social and cultural well-being of people and the environment associated with the Whakatane Sawmill. Presentations outlined the work and research of a range of organisations, including Ngāti Awa Social and Health Services, to address the concerns and impacts of these substances in the region including bioremediation trials underway.

The second hui, held in March 2011 and hosted jointly with the Whanau from Kiritahi Marae in Whanganui, focussed on river health and wellbeing from a Māori cultural perspective. Participants and agencies attending the hui were provided with information and experience from an iwi well known for its tight-knit relationship with the Whanganui River.

During 2010-11 Ngā Kaihautū Tikanga Taiao reviewed the Chief Executive Initiated Reassessment of methyl bromide. This review was undertaken as part of their mandate to evaluate Authority decision-making processes where applications have posed significant issues for iwi/Māori. They concluded that the process used to consult/engage with iwi/Māori during the application process was very successful, and should be used as a best practice model for future Chief Executive Initiated Reassessments that involve significant issues for iwi/Māori. This process included extensive pre-application consultation, targeted local hui with iwi/Māori groups most affected, and site visits to affected marae. The reassessment also resulted in controls that facilitate the active engagement of affected iwi groups with port authorities and other users.

Iwi/Māori were also actively involved in a number of applications during this period. The most notable was the application by Scion to field trial genetically modified pines. The hapū groups local to the research centre were engaged throughout the process and joined Scion in their presentation of the application to ERMA.

1.6. International linkages

ERMA continued to maintain and develop links with overseas regulators. For example, in 2010-11 work was initiated to strengthen relationships with the Australian Pesticide and Veterinary Medicines Authority (APVMA) and the National Industrial Chemicals Notification and Assessment Scheme (NICNAS) in Australia.

ERMA staff were also involved in activity for relevant international agreements and conventions to which New Zealand is a party.

The HSNO Act contains clauses that relate directly to the Stockholm Convention on Persistent Organic Pollutants (POPs), an international agreement to eliminate or reduce the production and environmental release of POPs. New Zealand is a signatory to this convention, and uses this international obligation to provide impetus for the effective management of the risks from POPs. As new substances are added to the convention, the New Zealand government is able to use the provisions of the HSNO Act as the legislative means to ban their use. In July 2011 nine new POPs were added to the HSNO Act by amendment, after being added into the Stockholm Convention by agreement of the Conference of the Parties in 2009.

Part 2: Post-reassessment monitoring of hazardous substances

This chapter provides an in-depth case study of a particular HSNO intervention, including analysis of its effectiveness. This year the topic is the use of post-reassessment monitoring requirements as a tool for monitoring whether or not the risks from hazardous substances are being adequately managed.

2.1. Use of monitoring controls

Section 77A of the HSNO Act states that “the Authority may, at the time it approves a substance for any purpose under this act, impose as controls under this section any obligations and restrictions that the Authority thinks fit.” In a few cases this power has been used to impose monitoring requirements on hazardous substance approvals.

These monitoring requirements are additional controls or other requirements applied to an approval that require some form of on-going monitoring of the use and/or effects of the substance. This may be through monitoring the amount of a substance that is being used, or by measuring the effects of a substance through monitoring reports of its misuse, or of harm that has been caused by the substance. These requirements are put in place to monitor the effectiveness of the other controls placed on the substance to ensure the risks are being adequately managed.

To date monitoring requirements have only been applied to substances when they have been reassessed. This has occurred in four cases, in the reassessments of the substances hydrogen cyanamide, clopyralid, 1080 (sodium fluoroacetate), and methyl bromide. These four cases are described below, along with analysis of how effective these monitoring controls have been.

For hydrogen cyanamide and clopyralid, the reassessment decisions included a requirement for ERMA to monitor their use. This is different to the full monitoring controls applied to 1080 and methyl bromide, which are much more prescriptive and require reporting of data to ERMA/EPA.

2.2. Hydrogen cyanamide

Hydrogen cyanamide (commonly known as Hi-Cane) is used as a plant growth regulator on kiwifruit. It is routinely used as a management tool on both green and gold kiwifruit vines to promote bud break and flowering of kiwifruit vines. This allows orchardists to synchronise flowering and subsequent harvest. Eighty percent of its use is within the Bay of Plenty region, with spraying occurring in July and August.

Reassessment

A Chief Executive Initiated Reassessment (CEIR) was undertaken of hydrogen cyanamide in 2006.

One of the risks considered in the reassessment was the risk to bystanders (i.e. general public in the vicinity of the spraying). Exposure to bystanders could occur through spraydrift causing skin irritation and sensitisation. If hydrogen cyanamide is used in conditions that minimise the likelihood of spraydrift, such as low wind and with adequate buffer zones in place, the risk of adverse effects to bystanders arising from spraydrift is low.

The development of air inclusion spray nozzles was considered in the decision, with trials showing a reduction in spray drift by as much as 85 percent when these nozzles were used compared to standard nozzles.

Monitoring requirements

The Reassessment Committee considered that ERMA should monitor the reporting of incidents over the next five years to assess the effectiveness of changes in technology and the impact of the regulatory controls. This is not a control on the users of the substance, as it only requires the agency to carry out monitoring of the substance.

Monitoring data

Records of complaints about the misuse of hydrogen cyanamide made to the Bay of Plenty Regional Council have been kept from 2004. Figure 1 shows the number of complaints received and the type of alleged breach of controls.

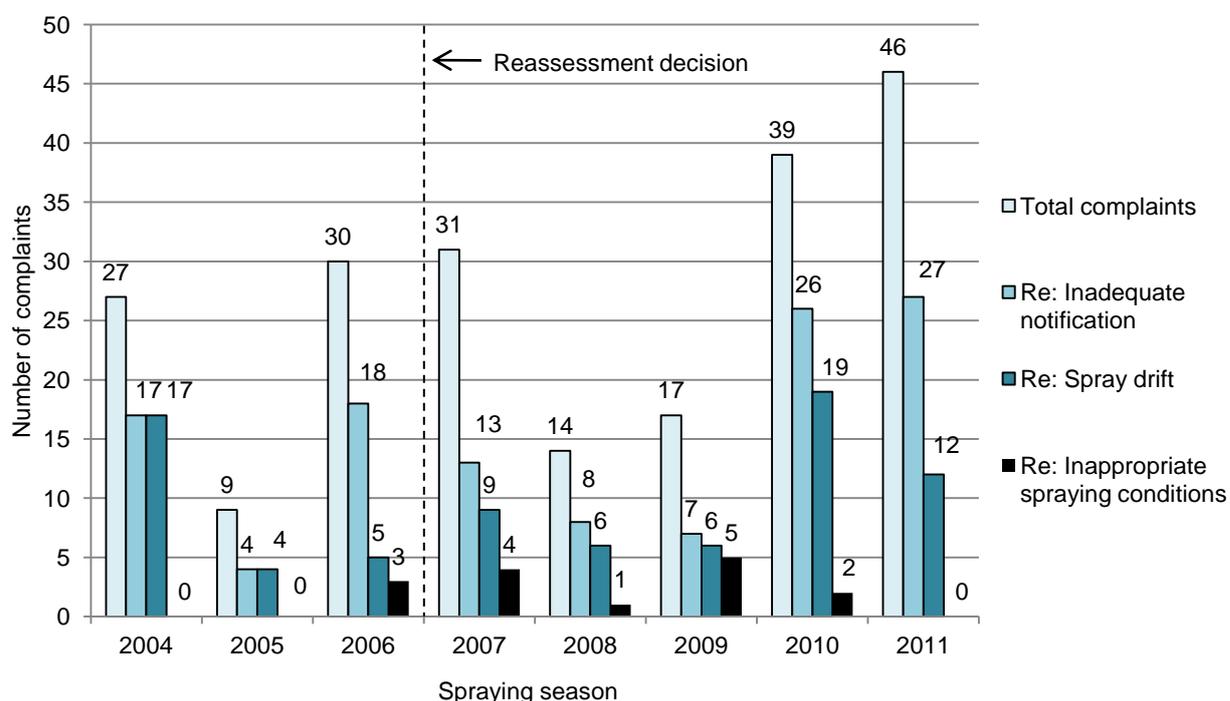


Figure 1: Hydrogen cyanamide complaints received by the Bay of Plenty Regional Council

The total number of complaints has increased since 2010. The Regional Council believes that this increase is likely due to greater awareness amongst the public of the right to complain. There are significant challenges in validating complaints, making it difficult to determine the impact of the changes. Complaints in

themselves do not necessarily demonstrate that incidents have occurred, or that industry practice has deteriorated. The increase in complaints about inadequate notification also coincided with the Council's public awareness programme.

The Bay of Plenty Regional Council sets notification requirements for the spraying of agrichemicals under the Resource Management Act, including notification of neighbours and signs where spraying is near a road. The increase in complaints about inadequate notification would imply that the notification requirements are not being consistently complied with. However, as this is an RMA requirement, not a HSNO one, it is not a breach of the HSNO controls.

A review by the NZ Kiwifruit Growers Association in 2008 estimated that 80 percent of spray applications used the new nozzles. As of 2011, Zespri made the use of air inclusion nozzles compulsory for all of its growers. Therefore, spraydrift should have reduced with the increased use of the new spray nozzle technology.

Effectiveness of monitoring

The monitoring requirement for hydrogen cyanamide introduced in the reassessment decision did not impose any requirements on users for the reporting of data to ERMA, only that ERMA monitor any reports. This meant that ERMA was reliant on the relevant regional councils to collect and provide the data and that the councils choose what data (if any) that they collect. Eighty percent of the substance is used in the Bay of Plenty. The Bay of Plenty Regional Council was the only council where useful data had been collated, so has been the main source of data. The Council promotes a "best practice" approach with industry and supports the involvement of stakeholders to monitor and educate on the safe use of hydrogen cyanamide.

The monitoring requirement for hydrogen cyanamide may have been more effective if it had been in the form of a control requiring reporting of specific information to ERMA. However as the Council already collects and reports this data it would have represented an unnecessary duplication of effort. The effectiveness of this monitoring therefore rested on the coordination between the two authorities, which in this case was very good.

Unfortunately complaints reported to the Council cannot always be confirmed as incidents; therefore this data cannot be used as an indication of harm or non-compliance with the controls. However with the introduction of better technology for spraying, and the continued efforts of the Regional Council to promote safe use, it can be assumed that hydrogen cyanamide is being used more safely than it was before the reassessment.

2.3. Clopyralid

Clopyralid is a herbicide used for the control of specific problem weeds, primarily by commercial growers of various crops such as asparagus, beets, cereals, maize and sweet corn. It is also used to control weeds in conservation tillage (brassicas, cereals and ryegrass), field/forage brassicas, forests, pasture, ornamental trees and orchards. Other users include organisations managing ornamental trees, turf and amenity areas; and domestic users for home lawns and turf to control clover, broadleaf weeds and cape daisy.

Reassessment

Clopyralid was reassessed over 2006-07 following an application from the New Zealand Business Council for Sustainable Development. The major concern of the applicant was the contamination of compost made from clippings that had been treated with clopyralid. Clippings are used for compost or mulch by the large-scale operations of local authorities and commercial organisations, and by domestic gardeners. The Reassessment Committee considered that clopyralid is very likely to contaminate compost made from vegetation treated with a substance containing clopyralid.

As very small amounts of clopyralid (e.g. a concentration in compost in the order of 10 parts per billion) can harm susceptible plants, contaminated clippings cannot be used to make compost and contaminated compost will be significantly reduced in value.

Contaminated green waste has to be disposed of by other means. The resulting environmental effects of this contamination are the need for more land for landfill purposes, and the adverse environmental effects associated with additional transport and processing of the waste material. There are also costs associated with testing for contamination of compost by clopyralid.

Several new controls were imposed by the reassessment, including the following information which must be shown on the label of the substance:

- For a soluble concentrate containing 300 g/litre clopyralid as the amine salt, it must not be used in home gardens and must not be used for treating turf that will be mown and the clippings used for making compost; or made available for collection for, or deposited at, a municipal green waste recycling depot.
- For a soluble concentrate containing 225 g/litre clopyralid and 150 g/litre picloram as the monoethanolamine (MEA) salts, it must not to be used on turf. And treated vegetation shall not be disposed of at any green waste recycling centre.

The reassessment also requires that the substance must be under the personal control of an approved handler when used in any quantity, and can only be sold to someone who holds an Approved Handler Certificate.

Monitoring requirements

When the reassessment decision was made there was uncertainty regarding the effectiveness of the controls in preventing contamination of compost manufactured from grass clippings. Accordingly, the Reassessment Committee considered that ERMA should monitor the reporting of contamination by the applicant over the next five years. The Committee noted that at the end of this time, if there is evidence of significant adverse effects, the Authority may consider whether there are any further grounds for reassessing substances containing clopyralid under the Act.

This monitoring requirement is similar to the one for hydrogen cyanamide, as it is not a specific control on the users of the substance, but is a requirement on ERMA to monitor the effects of the substance in order to evaluate the effectiveness of the other controls in managing the risks from its use.

Effectiveness of monitoring

Only one composting company actively tests for clopyralid, and has been the only source of reliable data for ERMA. Data for each of the first four years since the reassessment has shown frequent contamination of compost by clopyralid. Data for the fifth year was yet to be received at the time of this report.

This is significant as it shows that clopyralid was still being used on home gardens and on vegetation that is used for composting, contrary to the new label requirements put in place. It is unclear if this was because people were using up existing stocks of the substance or if they were purchasing it illegally. In some cases it could be use by contractors not following the label instructions.

In this case the monitoring may prove useful in showing whether the substance continues to contaminate compost, although there is limited data available.

2.4. 1080

1080 (or sodium fluoroacetate) is a pesticide lethal to many animals, interfering with energy metabolism leading to energy depletion, breathing problems and death by heart and central nervous system failure. It has been used in New Zealand since the 1960s to kill possums and other pests. Possums cause environmental damage by eating the eggs and attacking the young of native birds, as well as destroying native trees through defoliation. Possums may also carry bovine tuberculosis which they spread to cattle and deer.

The use of 1080 in New Zealand is controversial, especially when applied aerially. Currently there is no viable alternative for controlling possums over much of the conservation estate, but many people object to the widespread use of a toxin that can kill non-target species when incorrectly applied.

Reassessment

The Animal Health Board (AHB) and the Department of Conservation (DOC) jointly submitted an application for the reassessment of 1080 in 2006. They sought approval for the continued use of 1080 for the control of possums and other pests. There was significant public interest with more than 1400 submissions and the Reassessment Committee heard more than 150 submitters in person.

The reassessment was completed in August 2007 and concluded that the benefits outweighed the adverse effects, and that the benefits could only be fully realised through both aerial and ground operations. As aerial use raised risks of additional adverse effects, controls were tightened on aerial operations.

Monitoring requirements

The reassessment included a monitoring control on aerial applications of 1080. Operational managers and funding agencies are jointly required to submit detailed information to ERMA/EPA after an aerial 1080 operation, which is to include:

- who undertook the operation and why
- information about the 1080 formulations used and application rates
- the location and size of the operation
- monitoring information, including
 - water monitoring, if it was carried out in conjunction with the operation, and
 - species monitoring, if it was carried out in conjunction with the operation
- an assessment of the outcomes of the operation
- an overview of the communication activities (consultation and notification), and the outcomes of that communication
- an overview of any incidents and complaints related to the operation, and the actions that resulted from those incidents and complaints
- a map of the operational area.

These post-operational reports are published on the ERMA/EPA website and summarised in an annual report by ERMA/EPA which is also published.

Monitoring data

ERMA/EPA has published four annual reports on the aerial use of 1080 to date, for the years 2007 through 2010. The requirements for providing post-operational reports to ERMA/EPA only came into force on 1 January 2008, so the first (2007) annual report did not include any operational data. These annual reports also include analysis of incident reports received and progress toward the implementation of

recommendations made in the reassessment: research into 1080's impacts and possible alternatives; and development of best practice guidelines.

The data provided so far indicate the rules for aerial operations are largely being complied with. Over the past four years there have been improvements made but breaches continue to occur.

ERMA/EPA is advised of complaints and incidents through incident reporting of operators, the public registering concerns, and through the media. These are then assessed to determine the required response.

Figure 2 shows the number of incidents and reports of public concern received by ERMA since 2008. The number of reports where an operator breach was found is lower in the last two years than in 2008, whereas the number of incidents caused by the public has increased. These are generally deliberate actions by members of the public to interfere with 1080 operations.

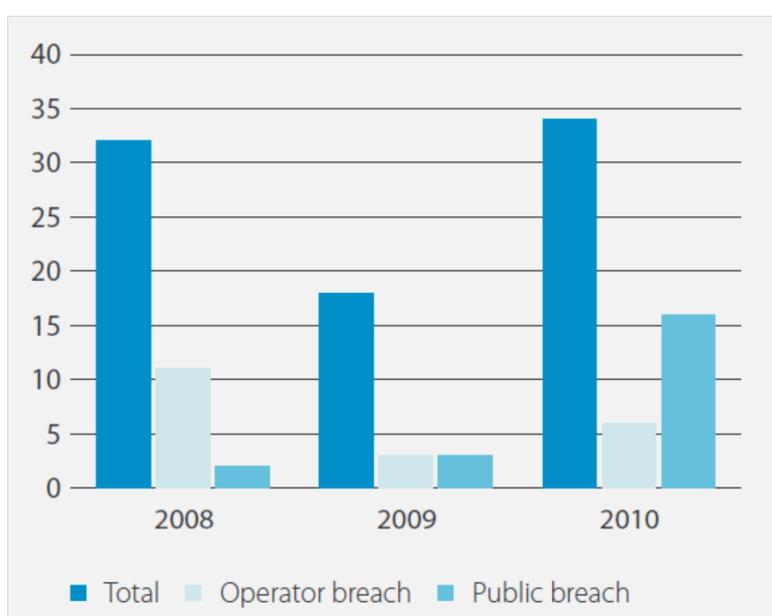


Figure 2: Reports received by ERMA of 1080 incidents and cases of public concern, and the number subsequently found to involve a breach. The total column is more than the combined number of breaches as not all reports are found to involve a breach.

Effectiveness of monitoring

1080 monitoring is very effective, mainly due to the reporting requirements being jointly imposed on relevant parties, the significant effort by the ERMA/EPA to monitor the aerial use of 1080 and the fact that the controls specify the information required to be submitted. The clear requirements for monitoring and the publication of the 1080 annual report create an incentive for users to comply. The annual report publicises any non-compliance and, in effect, names and shames operators who do not comply.

The monitoring control has created a significant amount of work for industry and for ERMA/EPA. This is due to the amount of reporting (and corresponding compliance work) required and is different to the requirements

for hydrogen cyanamide and clopyralid, which only require ERMA/EPA to monitor reports provided to it. However the scale of concern around the aerial use of 1080 is such that this closer scrutiny is warranted.

The close monitoring of 1080 use makes it possible to monitor exactly how much and where the toxin is being aerially applied in New Zealand. This is important not only for monitoring pest control operations, but also as the use of 1080 is of such high public concern the annual reporting provides public transparency.

2.5. Methyl bromide

Methyl bromide is a broad spectrum fumigant used internationally and in New Zealand for quarantine use. Treatment with methyl bromide is required by importing countries on a number of products prior to their shipment and is also used in quarantine applications on imported goods. The application of methyl bromide for large-scale fumigation of export logs under tarpaulins has attracted considerable public interest.

Public opinion is divided on the use of methyl bromide. On the one hand, New Zealand must protect itself from the invasion of pest species and must meet the requirements of countries it trades with. On the other hand, methyl bromide is a highly toxic substance with known health effects if not used and managed properly. It is also an ozone-depleting substance and many of its uses are required to be phased out under the Montreal Protocol on Substances that Deplete the Ozone Layer, an international treaty to which New Zealand is a party.

Reassessment

A Chief Executive Initiated Reassessment (CEIR) of the approval for methyl bromide was undertaken in 2010. The Reassessment Committee considered the adverse effects of the continued use of the substance: effects on human health with potential exposure to workers and the public; effects on the environment; effects on the relationship with Māori and the environment; effects on communities; and effects on the economy. The Committee also considered the benefits for the continued use of methyl bromide, including benefits to human health and the environment in relation to biosecurity, and significant benefits to the economy including Māori interests in forestry.

The reassessment strengthened the controls on methyl bromide and imposed new controls as part of a revised management regime which involves three main elements:

- the setting of short-term (1 hour and 24 hour) tolerable exposure limits (TELs) in addition to a chronic TEL
- air quality monitoring and reporting requirements
- requirements for minimum buffer zones around fumigations.

An additional requirement is that 10 years from the date of the decision (by 2021) all methyl bromide fumigations are to be subject to recapture technology.

Monitoring requirements

A monitoring control imposed in the reassessment decision requires that where 500 kg or more of methyl bromide is used in one calendar year on a site (which is not being recaptured), the person in charge of the site must produce an annual monitoring report and provide it to ERMA, the Department of Labour and the relevant Medical Officer of Health by 30 June the following year. ERMA will publish these reports on its website to allow access by the public.

The report must contain the following information in respect of the calendar year:

- the number of fumigations using methyl bromide carried out at the site
- the total amount of methyl bromide applied at the site
- the types of enclosed spaces to which methyl bromide has been applied
- the types of equipment used to carry out the monitoring of methyl bromide
- the annual exposure level
- approximate total amount of methyl bromide accidentally discharged
- how many times the exposure levels exceeded the TEL air value
- the number of notifications of breaches of any TEL values made to the Medical Officer of Health and the Department of Labour
- if any breach of a TEL air value occurred:
 - a discussion of possible causes of each breach; and
 - an explanation of what measures will be taken to ensure that TELs will be complied with in the future
- any accidents or other issues related to non-compliance with any of the controls under the approval.

Effectiveness of monitoring

The methyl bromide decision was made on 28 October 2010 and took effect on 1 May 2011. The first reports are due on 30 June 2012, and will cover the period from May 2011 to December 2011. Therefore no comment can yet be made on the effectiveness of the monitoring control.

2.6. Conclusions

The assigning of monitoring requirements to hazardous substance approvals has not been widely used, and has had mixed success. In the case of 1080, where the monitoring controls were extensive and clearly set out, they have shown to be very effective. In other cases they have been of limited value, for example with

clopyralid, where limited data has been available. However even in this case it has still been of some use, as the data showed that clopyralid contamination was still occurring.

For 1080, and perhaps also for methyl bromide, monitoring controls are a valuable tool for monitoring the effectiveness of the other HSNO controls that have been placed on these substances to manage the risks from their use. Like 1080, the monitoring controls on methyl bromide are very prescriptive, but it is yet to be seen whether they will be as effective.

With both 1080 and methyl bromide the obligation is on the industries using the substances to collect and provide the data to ERMA/EPA. This has been successful with 1080 as there are a small number of operators using the substance nationally and the requirements for reporting are very clear. It is hoped that the requirements for methyl bromide fumigations will be as effective, as it is also an industry with a small number of operators.

The monitoring requirements for clopyralid and hydrogen cyanamide were not controls as such, but required ERMA to monitor specific areas of use of the substances. This is different to the prescribed monitoring controls on 1080 and methyl bromide. These less-specific monitoring requirements are not as successful when it comes to monitoring the compliance with use controls as they are reliant on ERMA/EPA obtaining data from other agencies which they may not be mandated to provide. This means that the data will not be as reliable or as extensive as that provided under the prescribed monitoring controls.

The usefulness of any monitoring requirement has to be weighed against the level of effort required to obtain and analyse the data. For substances where there is uncertainty and the potential for harm, this extra effort may be warranted. This is particularly the case where the substance is used in significant quantities, in public areas and/or is of high public concern. In these cases it is important that the risks from the substance are being adequately managed, and the monitoring requirement is a valuable tool to assess this.

In the cases of hydrogen cyanamide and clopyralid, the monitoring requirements were time-limited. For 1080 and methyl bromide, there is no time limit, and the usefulness of the monitoring controls will have to be reviewed at some stage in the future to ensure that they are still necessary.

It can be concluded that the use of monitoring controls is useful for maintaining an overview on the use of high-risk substances, particularly where there is uncertainty and the monitoring may provide relevant new information which may provide grounds for a further review of the controls. To achieve this, the reporting requirements need to be relevant to the effects of concern, prescriptive, the users (and use) need to be easily identified and there needs to be an enforceable obligation on the users of the substances to provide the information. However, this comes at a cost that needs to be weighed up against any benefits which may be gained.

Part 3: Indicator data

3.1. Information on the indicator set

This section provides data for a set of numerical indicators that have been collected since 2001.

Table 1 provides a guide to interpreting the data in the main indicator data tables. Some data have been updated since the year they were first collected so may differ from figures shown in previous monitoring reports. Other indicators have been deleted so the indicator numbers are no longer sequential.

The methodology of the indicator framework is based on the Pressure-State-Response (PSR) model developed by the Organisation for Economic Cooperation and Development (OECD). This model is based on the concept of causality, where human activities exert pressures on the environment (Pressure). This changes the quality of the environment (State) and society responds to these changes, through policies or changes in awareness and behaviour (Response).

While these indicators provide a useful baseline for trend analysis, some fundamental problems have been identified with the data. Some indicators do not provide enough detail to adequately inform regulatory decision-making. Some datasets have changed since they were first used and are no longer useful for long-term trend analysis. Other data may not be available in any given year due to resourcing or other constraints at the source agency or other unforeseen problems. Any trends identified in the numbers shown should therefore be treated with caution and are presented here for information purposes only. See the relevant comments for each indicator for more specific detail.

Table 1: Key to Indicator Data Tables

Indicator topic									
Year									
Indicator Number: Title (Data source*)									Indicator Level
Data									
<i>Comments on trends and data validity</i>									

**Acronyms used for data sources:*

- CPHR = Centre for Public Health Research, Massey University
- DoL = Department of Labour
- EPA = Environmental Protection Authority
- MAF = Ministry of Agriculture and Forestry
- NZFS = New Zealand Fire Service
- NZHIS = New Zealand Health Information Service within the Ministry of Health
- Stats NZ = Statistics New Zealand

3.2. Indicator data

Hazardous Substances Imports and Exports									
2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11

Indicator 27: Gross weight of hazardous substances imported into New Zealand (Stats NZ) Pressure

1,321,355 tonnes	2,275,708 tonnes	8,784,382 tonnes	9,550,062 tonnes	9,302,164 tonnes	9,314,878 tonnes	9,474,277 tonnes	8,621,130 tonnes	8,940,246 tonnes	9,211,749 tonnes
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Indicator 28: Gross weight of hazardous substances exported from New Zealand (Stats NZ) Pressure

89,105 tonnes	Information unavailable	Information unavailable	Information unavailable	905,383 tonnes	810,105 tonnes	2,886,400 tonnes	2,596,218 tonnes	2,871,139 tonnes	2,383,563 tonnes
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Comment: Fluctuations in these figures are mostly due to changes in petroleum and natural gas production.

Hazardous Substance Incidents									
2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11

Indicator 21: Total number of incidents (vehicle and non-vehicle) involving hazardous substances attended by the NZ Fire Service (NZFS) Pressure & State

1,826	2,078	1,831	1,926	1,696	1,819	1,852	1,748	1,089	1,521
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Indicator 22: Total number of non-vehicle incidents involving hazardous substances attended by the NZ Fire Service (NZFS) Pressure & State

1,079	1,167	1,175	1,178	1,065	1,326	1,283	1,253	844	1,122
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Comment: The decrease in 2009-10 for both of the above indicators is due to industrial action taken by paid fire fighters in the period 16/07/09 to 23/12/09. During this time incidents were not registered in the data collection system.

Indicator 23: Total number of incidents involving hazardous substances reported to the EPA (EPA) Pressure & State

227	230	216	223	194	237	278	188	1293	1416
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Comment: Data may be unreliable for long-term trend analysis because there have been several changes to data sources and databases in the past few years. The increase in the last two years is due to NZFS data now being imported into the HSNO incident database. Further analysis of these incidents can be found in the 2011 ERMA Annual Report.

2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
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Indicator 7: Number of non-vehicle incidents involving hazardous substances attended by the NZ Fire Service where civilian injuries were recorded (NZFS) State

57	31	22	22	29	19	27	17	17	25
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Comment: Only includes injuries from fire-related incidents.

Indicator 8: Number of non-vehicle incidents involving hazardous substances attended by the NZ Fire Service where civilian fatalities were recorded (NZFS) State

1	1	1	0	2	2	0	1	1	1
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Indicator 9: Number of incidents involving hazardous substances reported to the EPA where adverse effects on human health were recorded (EPA) State

59	48	30	22	42	57	71	58	72	41
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Comment: Data may be unreliable for long-term trend analysis because there have been several changes to data sources and databases in the past few years.

Indicator 10: Number of incidents involving hazardous substances reported to the EPA where human deaths were recorded (EPA) State

2	1	1	0	0	6	2	3	4	0
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Indicator 15: Number of non-vehicle incidents involving hazardous substances attended by the NZ Fire Service where environmental contamination was recorded (NZFS) State

1249	523	411	424	436	594	467	501	332	492
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Comment: The decrease in 2009-10 is due to industrial action taken by paid fire fighters in the period 16/07/09 to 23/12/09. During this time incidents were not registered in the data collection system.

Indicator 16: Number of incidents involving hazardous substances reported to the EPA where adverse effects to the environment were recorded (EPA) State

60	67	28	63	64	98	129	60	437	419
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Comment: Data may be unreliable for long-term trend analysis because there have been several changes to data sources and databases in the past few years. The increase in the last two years is due to NZFS data now being imported into the HSNO incident database.

Public Health Effects									
2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11

Indicator 1: Number (and rate per 100,000 population) of **hospitalisations for accidental poisoning** by or exposure to noxious substances, excluding foodstuffs and plants, for **children aged 0-4 years** (NZHIS) State

2001: 161 (57.2)	2002: 149 (53.0)	2003: 132 (46.8)	2004: 145 (51.0)	2005: 238 (83.6)	2006: 230 (80.3)	2007: 227 (77.6)	2008: 191 (63.7)	2009: 138 (45.1)	2010: 125 (40.1)
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Comment: These two indicators are reported by calendar year, and have figures for all years updated annually. Data from 2009 onward is provisional so may not include all cases. The rates of hospitalisations appear to be decreasing, but it is difficult to attribute this fall to any specific interventions. The cause of the increase in 2005 is unknown, but may be related to changes in the data coding system.

Indicator 2: Number (and rate per 100,000 population) of **hospitalisations for accidental poisoning** by or exposure to noxious substances, excluding foodstuffs and plants, for **Māori children aged 0-4 years** (NZHIS) State

2001: 39 (52.4)	2002: 49 (65.9)	2003: 28 (37.9)	2004: 34 (46.0)	2005: 54 (73.8)	2006: 47 (64.3)	2007: 53 (69.1)	2008: 48 (59.1)	2009: 38 (44.6)	2010: 33 (37.1)
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Comment: See comment for previous indicator.

Indicator 3: Number (and rate per 100,000 population) of **deaths from accidental poisoning** by or exposure to noxious substances, excluding foodstuffs and plants, for the **total population** (NZHIS) State

1999: Information unavailable	2000 : 12 (0.31)	2001: 7 (0.18)	2002: 12 (0.30)	2003: 21 (0.52)	2004: 17 (0.42)	2005: 16 (0.39)	2006: 7 (0.17)	2007:24 (0.57)	2008: 39 (0.91)
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Comment: This indicator is reported by calendar year, and has figures for all years updated annually. There is a delay with reporting due to the time taken for coronial findings. Includes alcohol poisonings, which account for half of the deaths, on average, each year. For example, in 2008 there were 25 deaths from accidental alcohol exposure. Alcohol sold in quantities for personal consumption is not regulated by the HSNO Act. There have also been changes to the coding system which may partly account for the increase since 2006.

Indicator 4: Number (and rate per 100,000 population) of **deaths from accidental poisoning** by or exposure to noxious substances, excluding foodstuffs and plants, for the **Māori population** (NZHIS) State

1999: Information unavailable	2000: 3 (0.52)	2001: 0	2002: 5 (0.84)	2003: 10 (1.66)	2004: 6 (0.98)	2005: 7 (1.13)	2006: 4 (0.64)	2007: 10 (1.58)	2008: 8 (1.24)
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Comment: See comment for previous indicator.

2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
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Indicator 11: Number (and rate per 100,000 population) of hospitalisations for hazardous substance related injuries (CPHR)

State

Information unavailable	2006: 743 (17.7)	2007: 643 (15.2)	2008: 731 (17.1)	2009: 766 (17.7)	2010: 657 (15.0)				
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Comment: The data for this indicator was previously provided by the Chemical Injury Surveillance System, which has been replaced by the Hazardous Substances Surveillance System operated by the Centre for Public Health Research at Massey University. The data has been updated for past years for consistency, as the different systems included different substances in their datasets. Approximately one third of injuries each year are classified as intentional.

Indicator 12: Number (and rate per 100,000 population) of hospital emergency department attendances for hazardous substance related injuries (CPHR)

State

Information unavailable	2008: 171 (13.2)	Information unavailable	Information unavailable						
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Comment: Reporting for this indicator is sporadic, as not all District Health Boards (DHBs) report this data every year. 2008 data is from 6 DHBs.

Indicator 13: Number (and rate per 100,000 population) of deaths related to hazardous substance injuries (CPHR)

State

Information unavailable	2002: 243 (6.5)	2003: 231 (6.2)	2004: 211 (5.2)	2005: 227 (5.6)	2006: 196 (4.9)	2007: 110 (2.7)	Information unavailable	Information unavailable	Information unavailable
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Comment: Data unavailable due to new system being developed. There is significant delay with this data so it is updated whenever we get new figures. Includes therapeutic drugs and alcohol which account for the majority of deaths.

Hazards in the Workplace

2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
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Indicator 5: Number of cases of diseases affecting the lungs resulting from hazardous substance use in the workplace (DoL)

State

82	64	46	60	46	73	48	39	26	25
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Indicator 6: Number of cases of poisoning or toxic effects relating to workplace exposure to hazardous substances (DoL)

State

92	71	57	66	54	48	51	75	58	33
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Hazardous Substances Applications and Approvals									
2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11

Indicator 24: Number of hazardous substances reassessed (EPA)									Response
3	0	0	0	0	4	4	5	4	8

Comment: This includes reassessments done under s63A, but excludes the Yearly Chemical review.

Indicator 25: Number of hazardous substances reassessed and stricter controls imposed (EPA)									Response
0	0	0	0	0	2	3	1	3	3

Indicator 26: Number of hazardous substances reassessed and declined (EPA)									Response
0	0	0	0	0	0	0	4	1	1

Hazardous Substance Compliance and Containment ¹									
2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11

Indicator 38: Number of breaches of containment involving approved hazardous substances (EPA)									Pressure & State
0	0	0	0	0	0	0	0	0	0

Indicator 31: Number of hazardous substance compliance orders issued by enforcement agencies (EPA)									Response
203	Information unavailable	Information unavailable	55	16	Information unavailable	82	94	290	127

Comment: The increase in the last two years is due to a combination of increased training and more experienced and confident enforcement officers.

Indicator 32: Number of hazardous substance prosecutions taken (EPA)									Response
0	1	1	1	1	1	0	1	1	0

Comment: During 2010/11 the Department of Labour commenced court proceedings in one case for offences under the s109(1)(e)(ii) of HSNO Act and s39(5) of the HSE Act. As at 1 July 2011 the matter was still before the court. Does not include prosecutions taken by the NZ Police.

¹ These indicators do not include enforcement by agencies enforcing HSNO as part of transport rules, i.e. Police, Maritime New Zealand and the Civil Aviation Authority.

2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
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Indicator 33: Number of hazardous substance inspections carried out by enforcement agencies where no further actions were required as a proportion of total inspections made (EPA)

Response

98%	Information unavailable	Information unavailable	99.2%	99.7%	Information unavailable	98.4%	98.1%	94.8%	97.5%
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Comment: In 2010-11 there were 5070 inspections carried out of hazardous substance facilities by HSNO enforcement agencies. Breaches of the HSNO controls were serious enough to warrant the issue of a compliance order in 127 cases.

Indicator 34: Number hazardous substance inspections carried out by enforcement agencies where a compliance order was issued as a proportion of total inspections made (EPA)

Response

0%	Information unavailable	Information unavailable	0.7%	0.3%	Information unavailable	1.6%	1.8%	5.2%	2.5%
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Indicator 35: Number of hazardous substance inspections carried out by enforcement agencies where a prosecution was taken as a proportion of total inspections made (EPA)

Response

0%	Information unavailable	Information unavailable	0.1%	0.02%	Information unavailable	0%	0.02%	0.02%	0%
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New Organism Incidents

2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
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Indicator 14: Number of incidents involving approved new organisms (including GMOs) reported to the EPA where adverse effects on human health were recorded (EPA)

State

0	1	0	0	2	3	1	6	4	5
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Comment: The five incidents in 2010-11 all occurred in zoos. Three of the incidents involved bites to the hands and wrists of zoo keepers and a volunteer by various species of monkey and a lemur. Another involved a dingo catching a keeper's arm with a tooth after receiving an injection. The other incident involved a bite to the leg of a zoo keeper by an otter.

Indicator 20: Number of incidents involving approved new organisms (including GMOs) reported to the EPA where adverse effects to the environment were recorded (EPA)

State

0	0	0	0	0	0	0	0	0	0
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New Organism and GMO Approvals									
2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11

Indicator 19: Number of approved new organisms (including GMOs) subsequently declared as unwanted organisms under the Biosecurity Act 1993 (EPA) Pressure

0	0	0	0	0	0	0	0	0	0
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New Organism (including GMO) Compliance and Containment									
2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11

Indicator 36: Number of breaches of containment involving approved new organisms (including GMOs) that did not result in an escape or release (EPA) Pressure & State

4	5	3	1	0	3	2	7	5	3
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Comment: A number of these breaches relate to containment facility structural faults requiring repair in order to contain new organisms.

Indicator 37: Number of breaches of containment of an approved new organism (including GMOs) that resulted in an escape or release (EPA) Pressure & State

0	2	1	4	8	5	1	9	8	10
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Comment: The majority of these escapes involve zoo animals which have left their enclosure but not the zoo itself.

Indicator 39: Number of unauthorised developments of GMOs (EPA) Pressure & State

0	0	0	0	0	2	0	0	0	0
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Indicator 40: Number of intentional illegal releases of unapproved new organisms (including GMOs) (EPA) Pressure & State

2	2	1	4	1	5	1	2	2	3
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Indicator 31: Number of new organism compliance orders issued by enforcement agency (EPA) Response

0	0	0	0	0	0	0	1	0	0
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Indicator 32: Number of new organism prosecutions taken (EPA) Response

0	1	0	1	1	0	1	0	2	3
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Comment: Date of when prosecution processed in the courts, regardless of date of incident.

2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
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Indicator 33: Number of new organism inspections where no further actions were required as a proportion of total inspections made (EPA)

Response

82%	83%	81%	81%	63%	65%	77%	69%	64%	55%
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Comment: In 2010-11 there were 208 inspections carried out of new organism facilities, with non-compliances found in 106 cases. None of the non-compliances were serious enough to warrant the issuing of a compliance order.

Indicator 34: Number of new organism inspections where a compliance order was issued as a proportion of total inspections made (EPA)

Response

0%	0%	0%	0%	0%	0%	0%	0.4%	0%	0%
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Indicator 35: Number of new organism inspections where a prosecution was taken as a proportion of total inspections made (EPA)

Response

0%	0.7%	0%	<0.5%	<0.5%	0%	<0.5%	0%	0.8%	0.5%
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